The Influence of Prosecutors Highlighting the CSI Effect on Jury Behavior in Cases with Minimal or No Forensic Evidence: A Research Proposal

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Abstract

This research proposal examines the potential existence of a causal relationship between prosecutors highlighting the CSI Effect and jury voting behavior in cases with minimal or no forensic evidence utilizing an experimental design. The CSI Effect is a widely researched phenomenon that suggests jurors' perceptions of the quantity and quality of forensic evidence that appears in crime television shows creates an expectation of a similar experience in a real courtroom, potentially leading to biases in jury decision-making and behavior. This study aims to explore whether prosecutors' explicit references to a version of the CSI Effect, referred to as the strong prosecutor's effect during closing arguments, increases jurors' perceptions of guilt leading to a higher likelihood of conviction in the absence of strong or any forensic evidence. The study will measure jurors' behavior, emotions, and decision-making processes as time series data relative to a mock courtroom video stimulus. Understanding this interaction is crucial for ensuring fair trial outcomes and addressing potential biases in the judicial process. Despite a lack of empirical evidence supporting the CSI Effect, it has materialized in a self-prophetic manner as a factor in America's courtrooms.

Keywords: CSI Effect, Strong Prosecutor's Effect, Forensic Evidence, Jury Decision-Making, Juror Bias, Courtroom Persuasion, Legal Psychology, Closing Arguments, Quantum Cognition

I. Introduction

The Crime Scene Investigation (CSI) Effect or the corollary, anti-CSI Effect in the case of this proposed study which focuses on the strong prosecutor effect variation has little empirical evidence suggesting that it exists, other than the self-fulfilling prophetical instances whereby it is introduced by either counsel or even the judge into the courtroom. Given the increasing frequency and awareness of the phenomenon, some courts have even introduced anti-CSI Effect procedures in the form of adopted jury instructions. (Chin & Workewych, 2016) In a jury trial, closing arguments are typically emotionally charged presentations, a final chance for either side to sway the twelve jurors before they are sequestered for deliberations. The whole ritual is imbued with an unspoken adrenaline inspired rush as each side seeks to capitalize on the recency effect as prosecution and defense duel; sophistry, logic and emotional appeal the weapons of choice.

In a last-ditch effort to tip the scales, each side uses everything at their disposal resulting in the evocation of emotions, decisions and ultimately an action -a guilty or innocent verdict based on the perceptions and behavior of twelve *impartial* jurors. A vote that decides not only the fate of the defendant's life, but also the web of interconnected lives that intersect with the victim and the accused with potentially everlasting permanence –the death penalty. Even after taking into consideration voir dire and peremptory challenges in a modern world saturated with digital information and entertainment, can anyone really be entirely impartial? In cases where there's little to no forensic evidence, does a pool of jurors who have been exposed to repetitive courtroom television programs across genres, perhaps one might even argue conditioned by societal programming regarding expectations of forensic evidence be tainted by a prosecutor bringing this potential bias to light? That is the main question that this research proposal seeks to

address by exploring the possibility of a causal relationship between the prosecution making the jury aware of the strong prosecutor's effect during closing arguments (rebuttal) in cases where forensic evidence is sparse or non-existent and determining if this intervention potentially results in a higher probability of conviction.

II. Literature Review

Brief History

The strong prosecutor's effect is a term coined by Cole and Dioso-Villa (2007) and one of the most researched aspects of the CSI Effect. (Chin & Workewych, 2016) It suggests that based on a juror's exposure to programming that over exaggerates the quality and quantity of forensic evidence presented by prosecutors in creating perfect, shut and closed television cases, an immutable bias is formed. Art in this case is a poor imitation of the reality prosecutors face in actual courtrooms with forensic evidence that in more cases than not is subject to broad interpretation, has chain of custody issues or does not exist at all. Defense attorneys quickly seized upon the idea, poking holes in cases based on the lack and quality of forensic evidence one would be accustomed to in a television show, potentially resulting in altering jury behavior and false acquittals. Several other proposed effects originating from the basic premise have been identified in scholarly work all with a different spin of how the various biases affect the criminal justice system. The only problem is that little if any empirical evidence exists supporting the existence of the CSI Effect. It may be a self-fulfilling prophecy once created by academia, introduced by defense attorneys, prosecutors and judges making it quite real. (Chin & Workewych, 2016)

Show Me the Man and
I'll Show you the Crime

To provide equity to society, it is important that jurors remain as unbiased as possible in the criminal justice system. With the surge in popularity and mass proliferation of crime dramas on television, it is likely that a high percentage of jury pool candidates have been exposed to some programming, potentially creating bias. The potential bias introduced by television programming is broadly, the CSI Effect. Researchers Jason M. Chin and Larysa Workewych investigated the empirical basis for the existence of the CSI Effect to determine if it is a real phenomenon and the ramifications on the criminal justice system. The researchers define the CSI Effect in terms of a schema admitting that the two predominant derivations, the strong prosecutor's and defendant's effects are plausible within constructs of modern psychology. However, the authors also acknowledge a lack of convergence of methodologies resulting in definitive empirical evidence. (Chin & Workewych, 2016)

The most researched derivation is the "strong prosecutor's effect". The strong prosecutor's effect suggests that due to exposure to the television programming, jurors have a higher expectation of forensic evidence than typically exists versus a television show, burdening the prosecution to overcome this bias and ultimately resulting in false acquittals. The corollary is the "weak prosecutor's effect" whereby prosecutors are aware of the strong effect and during voir dire and jury selection may exclude jurors who watch CSI programming or address the issue directly with jurors as part of the trial. The "reverse-CSI Effect" or "defendant's effect" suggests that prosecutors benefit from the weight given by jurors to forensic evidence that is introduced based on bias established from programming. In an attempt to eliminate bias by addressing the CSI Effect in the courtroom, participants may actually be creating it by introducing it into the proceedings in a self-fulfilling prophetic manner. (Chin & Workewych, 2016) The reason why the researchers investigated this issue is to provide guidance as to potential best practices for the

treatment of the CSI Effect by the criminal justice system as well as guide future scholarly analysis of the issue such as the topic proposed in this research paper.

Seeing is Believing

Researchers Vicary & Zaikman investigated a hypothesis derived from the CSI Effect exploring how fictional television programming influences the actual criminal justice system at various levels. (Vicary & Zaikman, 2017) The researcher's surmise that this may be a result of the viewers being primed relative to the hours of repetitive viewing of CSI programming (frequency) or level of involvement with the television shows. The CSI Effect may result in a higher threshold for conviction based on jury pools who have had exposure to the television genre and perceptions regarding forensics, resulting in more acquittals. Alternatively, jurors might also have a higher level of trust in forensic evidence presented based on exposure to programming. The research paper also explores a different perspective of whether viewers of this genre might be better prepared to commit a crime than those who do not watch the shows by virtue of them acquiring a greater knowledge of forensic science, whereby the television programming may be detrimental to society, the police chief's version of the CSI Effect. The researcher's hypothesis is that the frequency and condition of the level of involvement in CSI programming of the subject will be more likely to result in a mention of forensic evidence in a self-reported description of a fictional burglary to be committed by the participant. (Vicary & Zaikman, 2017)

Vicary & Zaikman selected subjects from a Midwestern university who were given course credit for participating in the research. This potentially raises the issue of sampling bias. The participants were brought in small groups (2-10) to a computer lab and asked to write about how they would commit a burglary of a neighbor's house. The researchers captured their

demographic information and after the test asked them to self-report on the frequency and level of involvement as it relates to watching crime shows. After the results were collected, the researchers had three coders categorize the written summaries with respect to various behaviors related to forensic evidence and other factors that could mitigate the chance of being caught.

In the researcher's study, there wasn't any evidence of any connection between crime shows (frequency of exposure) and mention of forensic evidence, however there was a connection between the condition of the level of involvement with crime shows and the mention of forensic evidence in a self-described fictional burglary. With respect to the original hypothesis, it is false based upon the conjunction "and" requiring both conditions to be true, but it could be restated that solely the condition of the level of involvement in CSI programming of the participant is more likely to result in the mention of forensics in the context of the experiment. This is relevant to our proposed study as it provides a basis for connecting a juror who is engaged with a high level of involvement as a viewer of crime courtroom drama to displaying a heightened state of awareness concerning forensic evidence as it relates to themselves committing a crime, which could feed into their perceptions and expectations of the evidence as a juror in a real trial.

The sample bias discussed in item number two affecting age (younger) and the level of education (higher) is a limitation noted by the authors that could influence the mention of forensics in the experiment. The authors opine that younger more educated individuals may apply learned behavior from television with more skill than older less educated participants. Participants were also not randomly assigned to watch the crime shows, whereby people who had a preexisting interest in forensics were attracted by the subject matter to watch the show. The results of the level of involvement reflect the preexisting knowledge in forensics versus knowledge obtained through involvement with the show. (Vicary & Zaikman, 2017) The

researchers further suggest that in addition to lawyers questioning prospective jurors in conjunction with voir dire, that there is a basis as shown by their research to also question the defendant's level of involvement with crime shows, lending insight into their perceived knowledge of forensics. (Vicary & Zaikman, 2017)

Feeling is Truth

In a court room, especially in cases that involve heinous criminal acts that tear at the moral fabric of social conscience, emotions run high. Jurors are human and not immune to emotions of feeling angry, afraid, compassionate, or even shutting down completely, becoming indifferent (lack of emotion) or simply may be in a bad mood due to unrelated external factors. Moods are a temporal disposition of typically low intensity that results in a particular emotional response that may last minutes, hours, days or even weeks. Moods also affect judgements by influencing how people process information and may alter an interpretation of ambiguous information in a direction aligned with their mood, called mood-congruency. (Feigenson & Park, 2006) According to researchers Neal Feignenson and Jaihyun Park, emotions and moods play a significant role in decision making. Emotions affect human judgement in three key ways: (1) affecting information processing strategies (2) disposing judgement in alignment with the valence or hedonic tone of temporal emotions or moods and (3) providing informational cues as to what the correct decision is relative to (I)dentity –feeling good, bad, or uncertain about a decision. (Feigenson & Park, 2006)

The researchers examine Haidt's model 2001, 2003 that suggests intuitive, affective response is primarily responsible for moral judgements -an automatic, sub-conscious, knee jerk reaction resulting in a near instantaneous decision (like/dislike, good/bad, somewhere in between) that is then consciously defended post hoc of the decision to convince oneself and/or

others in the correctness of the judgement, with reason rarely overriding intuition. (Feigenson & Park, 2006) The first impression the jurors have within the first five hundred milliseconds of seeing the defendant, under Haidt's theory would suggest potentially fallible judgement, consciously supported for the rest of the trial by rationalization which insulate the mind of the juror making it difficult to change. The 1957 film 12 Angry Men by Sidney Lumet is an excellent exploration into the antithesis of Haidt's model, albeit with a Hollywood ending; reason prevailing over emotion and bias, that however may not reconcile with real-world outcomes having implications for the judicial system to this day. A limitation of the research conducted was the sample selected was limited to psychology students receiving credit for participation potentially impacting external validity. The researchers systematically reviewed the relevant prior art, examined the influence of emotion and mood on decisions and behavior, as well as its impact on the judicial system, proposing their own model and suggested ideas for further empirical research.

What did I have for Breakfast?

Kristi Costabile and Stanley Klein's research examines the impact of order effects on jury conviction rates based on when critical evidence is introduced in a trial, evaluating primacy and recency effects. Their research also considers the condition of admissibility instructions based on the prior research of Kassin & Sommers. The researchers suggest that the "jury judgement task" is a subset of the more general cognitive task of "comprehension set objectives" introduced by Srull and various colleagues, which involves a person focusing on each item in the order that it is presented, taking into consideration all the items and withholding judgement until a specific terminus when a judgement is requested. (Costabile & Klein, 2005) When information is presented to short term memory, the relationship of the amount of time elapsed to recall is

negatively correlated, reflecting the recency effect. Srull & Lichenstein's research further suggests that judgements would be disproportionately influenced by information presented closer to the terminus event. (Costabile & Klein, 2005) Most of the previous research conducted favors recency versus primacy when considering the serial position in terms of impact on behavior, however there are a few exceptions noted by the researchers. (Costabile & Klein, 2005)

The researchers conducted four variations of the experiment, working on a theory influenced by Srull and colleagues, that in the context of juror decision making a positive correlation exists between jury verdict and the late-stage presentment of "critical evidence". In the case of their experiments, a phone recorded confession of the defendant was the critical evidence and instructions to the jury concerning its admissibility another factor examined. (Costabile & Klein, 2005) The researchers hypothesized that the presentation of critical evidence at a later stage of the trial versus the beginning would have a larger impact on jury verdicts in alignment with the recency effect. The researchers concluded that the data supported their hypothesis suggesting incriminating evidence when it is presented toward the end of prosecutor's argument has the largest impact on juror verdicts. The real-world implications of the research findings in relation to the order of closing arguments which are procedurally set, suggest a substantive effect on outcome. The prosecution by having the final rebuttal and therefore an opportunity to restate the critical evidence, potentially gains an advantage toward conviction. This is relevant to our research proposal regarding the impact of the recency effect on explicit CSI Effect instruction to the jury by the prosecution during the rebuttal. The authors provide general guidance for extending their research in future directions inviting additional work focused directly on courtroom application.

III. Methods

Participants

In the U.S. court system jury duty is considered a civic service which pays a minimum stipend to jurors for their participation. Typically, any United States citizen over the age of eighteen is eligible for jury duty and selected using voter registration, actual voter or resident lists of a political subdivision within a district or division for which they have resided in for at least a year. This is the same criteria that our experiment will use as the defined population who we will sample:

- United States Citizen
- Over the age of 18
- Registered voter
- Actual voter and/or resident of any U.S. state or territory for at least a year

Materials

Our research will be conducted online in the form of an interactive video survey consisting of a few questions capturing anonymous demographic information consistent with the three items listed above to confirm that the prospective participant meets the sample criteria, a few questions to establish the level of involvement in crime shows, pre-existing attitudes, an introductory video of instructions and a short randomly assigned video of the prosecutor and defense attorney's closing arguments capturing participant's behavior, emotion and decision time series data with sliders. The survey will not have access to nor retain any personal identifiable information of participants. Participants will be recruited online (reddit, Facebook, twitter, google ads, YouTube promo video) and no compensation shall be paid to participants other than they shall be made aware that their time will result in the following potential benefits:

- An opportunity to see firsthand innovative technology.
- A chance to contribute to a pioneering field of research that seeks to blend computational psychology with advanced data processing and quantum computation.
- Assurance that the insights we gather are used to foster innovations that are both impactful and ethically grounded.
- Knowledge that they play a crucial role in guiding future research.

***Informed consent** shall be provided, and proof of acknowledgement shall be recorded for each participant.

A link to a mockup of the on-line survey including the demographic questions, video elements and sliders may be reviewed at: https://psyc31110.streamlit.app/

The software written for this project in Python and a list of technical dependencies may be reviewed at: https://github.com/marcuscrodriguez/PSYC-31110-U70

The research project inclusive of the online survey, informed consent disclosures and video content would be subject to the Institutional Review Board's (IRB) approval.

Design

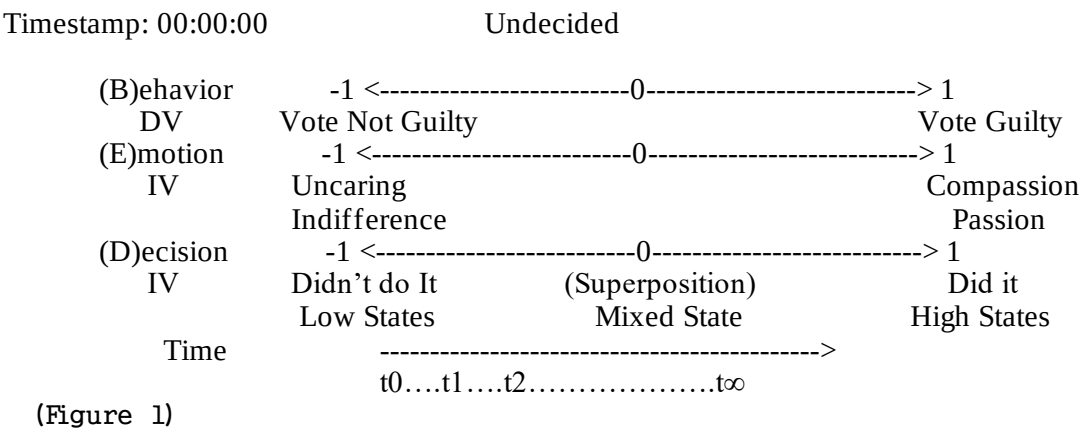
Our research proposes a between-subject design to avoid carryover effects and the need for counterbalancing using random assignment of participants testing the single treatment condition defined as an intervention: the prosecutor introducing the idea of the strong prosecutor effect to the jury as part of their rebuttal in closing argument. Our experiment uses random assignment with each participant having an equal chance (random number generator odd # = treatment condition, even # = control condition)) of viewing closing arguments with or without the treatment condition with each participant being assigned to the test or control group independent of one another.

The manipulated independent variable (IV) in the proposed experimental research is categorical consisting of two conditions, treatment and control and is discrete. Participants in the online survey will be divided into two groups, either exposed to the prosecutor's closing rebuttal highlighting the strong prosecutor's effect (video clip), the treatment or it will be omitted, the

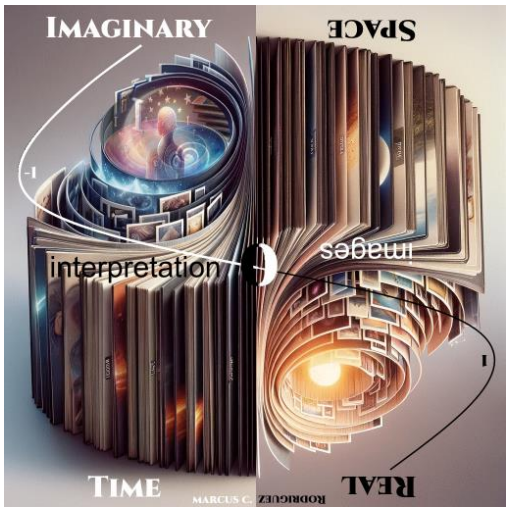
control. The treatment language was selected based on the verbiage actually used by courts in the anti-CSI Effect instructions: (Chin & Workewych, 2016)

> "During this trial you have heard of witnesses and may hear arguments of counsel that the State did not utilize a specific investigative technique or scientific test. However, I instruct you that there is no legal requirement that the state utilize any specific investigative technique or scientific test to prove this case. Your responsibility as jurors is to determine whether the State has proven based solely on the evidence presented the defendant's guilt beyond a reasonable doubt."

Throughout the entire video component of the survey, participants will have three sliders that they may record that which is imaginary (solely, internal unique in the mind of the observer) and by moving the slider make it observable and real opening a window to their temporal mental, emotional and decision state, a reflection of their (I)dentity relative to the video stimulus at a particular moment in time. We introduce two additional non-manipulated (IVs) and the dependent variable (DV), all continuous and measured in an interval between -1 and 1 in increments of 0.10, which constitute vectors of the mind having magnitude and direction in space and time as illustrated in figures 1,2 below:



(Figure 1)



(Figure 2)

The value as well as the difference in the changes of the (B)ehavior vector over time will tell us what action the juror is most likely to take, however the (E)motion and (D)ecision vectors will lend insight into the Why (correlation analysis). For example, at some moment in the trial perhaps when the defendant tries the glove on and it fits, the BED vectors are recorded by a juror changing from [0,0.25,-0.50] at t0 to [-1,1,1] at t1. This would suggest the juror decided at that moment in time, that the defendant did it, felt compassion (empathy) toward the defendant and voted not guilty to acquit. The difference or change in the vectors occurring from t0 to t1 is the imaginary component or the juror's perception changing in their mind relative to the stimulus and their individual (I)dentity -the real component occurs when the juror's move the sliders recording it or acts/behaves at t1 consistent with their change in perception based on the internal or external stimuli. The state of mind of the juror is probabilistic and a derivative of his/her/its (I)dentity, perception and resulting interpretation of external stimuli.

IV. Planned Data Analysis

The data collected in the proposed study will be analyzed using descriptive and inferential statistics providing insights into central tendencies, variability, relationships within the data and test the proposed study's hypothesis.

Descriptive

The following statistics will be calculated for the continuous variables (B)ehavior, (E)motion and (D)ecision separated into Experimental and Control Groups (i.e., odd/even video):

Measure of Central Tendency – Mean and Median

Measure of Dispersion – Range and Standard Deviation

Distribution Analysis – Histogram (determine if BED data is normally distributed meeting assumptions for further inferential testing)

Inferential

The following statistics are used to evaluate the sample relative to the defined population discussed in the Participant's section, drawing conclusions from the sample and testing the hypothesis:

Hypothesis (H_1) - The prosecutor's explicit references to the CSI Effect during closing arguments (rebuttal) increase juror perceptions of guilt and the likelihood of conviction in cases with minimal or no forensic evidence.

Null Hypothesis – There is no measurable difference in the perception of guilt and likelihood of conviction between jurors exposed to the treatment and the control group.

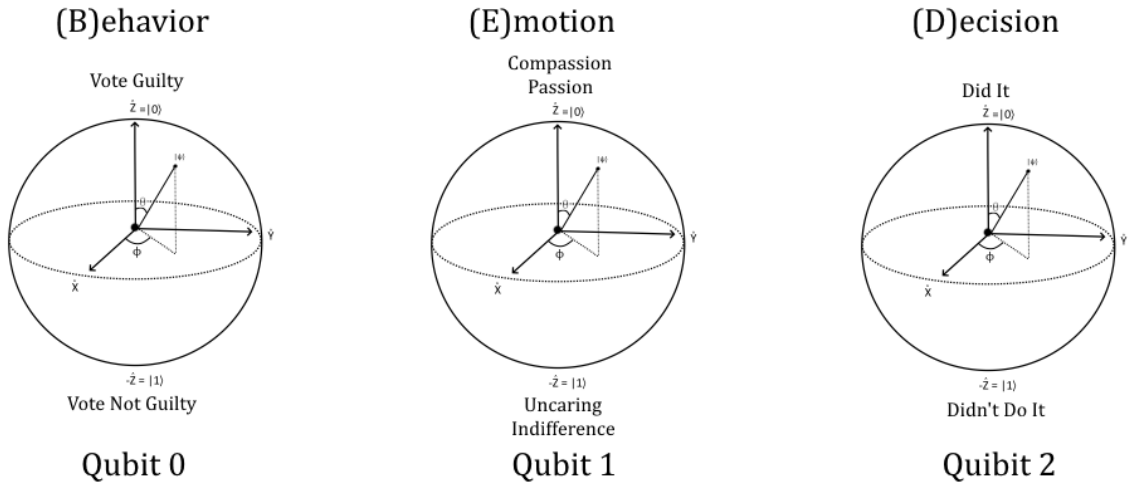
Independent Sample T-test - Compare the (B)(E)(D) mean scores between the two groups (treatment and control) to determine if there is a statistically significant difference between them. Our alpha level is 0.05, if the T-test's P value is less than 0.05, we would be able to reject the null hypothesis concluding the results are statistically significant. *Assumes a normal distribution (checked in distribution analysis, histogram), independence of observation (achieved in the experiment design) and homogeneity of variances among the two groups (Levene's test).

Pearson's Correlation - Examine the linear relationships between levels of involvement in crime shows as measured by the question, "How often do you watch and think about television crime series?" (ordinal/interval-scale: Never = 0, Rarely = 1, Sometimes = 2, Often = 3, Usually = 4 and Always = 5) and the continuous variable of behavior, emotion, and decision to determine the strength and direction of any linear relationship that may exist.

Quantum Circuit

In addition to classical statistical methods the BED data facilitates qubit mapping and building a quantum circuit by applying gates that correspond to participants movements of the sliders (collected data) on an IBM quantum computer (1,000 shots) and/or simulator generating a histogram of BED states. The dot product of BED qubits calculated from the slider data from multiple participants provides a cumulative perception of the external stimuli reflected in the histogram output of the circuit. The following figure 3 describes the wave equation and mapping of BED to a three qubit two state quantum system:

$$|\psi\rangle=\alpha|000\rangle+\beta|111\rangle \qquad \alpha + \beta = 1$$



(Figure 3)

V. Discussion

The chosen experimental design is "between-subjects" that allows for the isolation and examination of the specific influence of prosecutors introducing the CSI Effect and measuring an increase in the likelihood of obtaining a jury conviction to test the hypothesis. The chosen design mitigates the risk of potential carryover effects and biases that could arise in a "within-subjects" design. Recording self-reported differences in juror behavior can be directly attributed to the manipulation of the independent variable, by time stamping the intervention in the video in conjunction with participant's slider movement allowing approximately 250-600 milliseconds (about half second) for human mental interpretation (intuitive) of the video stimuli relative to the viewer's (I)dentity a second or two to rationalize, move the mouse and press the button.

Random assignment of participants to either the treatment or control condition enhances the internal validity of the study, allowing for robust causal inferences. The format of an online survey is practical and ethical, providing for a relatively diverse participant pool although it may be somewhat biased as it excludes those who do not have access to the internet or the technical skills to use their computer, ipad, smartphone or similar device to participate. The self-reporting online video survey approach is ethical as it collects the necessary data without participants being exposed to potential emotional harm that might be experienced in a real-life courtroom, especially in cases that involve heinous crimes.

In the author's opinion, the proposed design ensures reliability and a high degree of external validity, making the proposed research potentially useful for other researchers interested in this specific research question as well as related topics. Systemic bias is replicated in the experiment's design, for example the impact of the recency effect as the prosecutor's rebuttal is

the terminus of information presented to the jury, prior to deliberations. Another element of potential bias is the inherent authority figure roles ascribed to the judge, prosecution and defense attorneys as officers of the court, garb and choreographed rules by which interaction occurs in the courtroom mimicked by the setting in the video. The prosecutor may carry more perceived authority being held out to the jury as a representative of the state. The broader implications of this research if the hypothesis is supported by the experiment's findings, would indicate that courts which are implementing anti-CSI Effect procedures at or near the terminus of the trial by virtue of the judge or prosecutor addressing the jury, may be obtaining higher conviction rates based on factors which pose ethical considerations by exploiting biases that reach beyond the logical considerations of a defendant's guilt or innocence.

References

Chin, J. M., & Workewych, L. (2016). The CSI effect. In Oxford University Press eBooks. https://doi.org/10.1093/oxfordhb/9780199935352.013.28

Costabile, K. A., & Klein, S. B. (2005). Finishing Strong: Recency Effects in Juror Judgments. *Basic and Applied Social Psychology*, *27*(1), 47–58. https://doi.org/10.1207/s15324834basp2701_5

Feigenson, N., & Park, J. (2006). Emotions and Attributions of Legal Responsibility and Blame: A Research Review. *Law and Human Behavior*, *30*(2), 143–161. https://doi.org/10.1007/s10979-006-9026-z

Vicary, A. M., & Zaikman, Y. (2017). The CSI Effect: an investigation into the relationship between watching crime shows and forensic knowledge. North American Journal of Psychology, 19(1), 51–64. https://works.bepress.com/amanda_vicary/15/