

Comparison of Forensic Evidence and Eyewitness Testimony Accuracy and Reliability

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Abstract: In this experiment, the accuracy of forensic evidence and eyewitness testimony is investigated through a group of participants to generalize how the public feels about forensic evidence and eyewitness testimony to explore the reasoning and continued use of eyewitness testimony which may be ultimately less accurate than forensic evidence. Given the first survey, the participants answer if they find forensic evidence or eyewitness testimony more accurate or reliable, which forensic method they find most accurate out five choices, and then asked to describe what they saw in a video. Given the second and last survey, participants are asked to identify a suspect based on the original video. Then depending on the response, participants were asked to answer if they would be willing to change their mind if forensic evidence was found that contradicts their choice. It was found that 95.5% of participants found forensic evidence more accurate, the majority found DNA analysis to be the most accurate method, and 85% of those that picked a suspect from the line up would consider that their memory was flawed or a mistake had been made if DNA analysis contradicted their choice. Forensic evidence was found to be the most accurate and the majority of participants were willing to go back on their eyewitness testimony given forensic evidence that provides a differing solution, meaning that the accuracy of eyewitness testimony is not perceived as being above forensic evidence and the use of eyewitness testimony in court and elsewhere should be cautiously approached.

Keywords: forensic evidence, eyewitness testimony, DNA, accuracy

While eyewitnesses are valuable in many cases: civil or otherwise, eyewitness testimony contributed to wrongful convictions in the majority of some 375 cases, which were then overturned by DNA evidence (Innocence Project 2020). The purpose of this experiment is to compare the public's evaluation of forensic evidence versus eyewitness testimony to what has already been seen in court cases for decades, that eyewitness testimony in the courtroom can be destructive to the finding of the most

accurate and factual event. What happens with eyewitness memory is that each person picks out details that are important to themselves (Green 2013). Similarly, when dealing with an eyewitness of a bank robbery after three months of the initial crime, their free recollection was more accurate than that for specific questioning (Odinot, Wolters, and van Koppen 2009). The human mind cannot memorize every detail, so individuals will memorize details of an event, but depending on how long, what questions are

asked about the event, or anything in between the event and the retelling can change someone's perception. The use of an eyewitness in court, where the jury can be directly swayed by their testimony, can be seen as a mistake as most courts have not taken into account scientific research concerning eyewitness testimony and the accuracy of an eyewitness's memory (Wells 2018). Investigating how the participants felt about forensic evidence, eyewitness testimony, and if they would switch shows that the importance of eyewitness testimony may be misconstrued. Further investigation should be taken for the judicial system on the use of eyewitness testimony in court and the process of questioning witnesses.

Materials and Methods

Subjects voluntarily took part in two surveys in which their opinions on the accuracy of forensic evidence and eyewitness testimony were explored. Record contact information and or name in order to send the second survey and appropriately match and check data. At least 30 participants should be used for the first survey and at least half should fill out the second survey. For this experiment, 44 participants' data were collected from the first experiment, and 25 participants' data were collected from the second. The surveys presented to the participants contain hypothetical situations in which the participant will decide if they are willing to accept a contradiction to their eyewitness testimony. The first survey consists of questions before and after a video. The questions for this survey consisted of: "Which do you find to be more accurate?" with choices between forensic evidence and eyewitness testimony. "Out of the common forensic methods used to collect evidence, which do you find to be the most reliable or

accurate?" with the answer choices of hair analysis, fingerprint analysis, DNA analysis, tool mark/ballistic analysis, and blood spatter analysis. Participants are then to watch a video of a man holding and then dropping an object into a pipe then running away. After watching, participants answer and complete the rest of the survey as follows: "what did you see," and "describe the person you saw to the best of your abilities." Implicate as many days as possible within approximately a week before having the participants fill out the second survey. The second survey consists of the same questions asked after the first video. The first survey's data collected and reported that the majority found that DNA analysis was the most accurate or reliable of the forensic methods. The questions written in the second survey can be based on what the majority finds from the first survey. After watching a second video which consists of a lineup of potential suspects, the participants are to select a suspect 1-6 or not shown. The suspects shown in the video are not the same as the person from the first video. If any 1-6 is chosen, the participants will answer the question based on the majority's answer to the question of the forensic methods, in this case, it being DNA analysis. The question asks if on the object the man was holding, there was found to be DNA evidence that matches someone not shown in the lineup, would the participant be willing to consider that their memory was flawed or that there was a mistake in their identifying of a suspect. If the participant chooses not shown, they answer if on the object the man was holding, if there was DNA evidence that pointed to one of the suspects from the lineup, would they be willing to consider that their memory was flawed or there was a mistake in their identifying of a suspect.

Results

The results of the first survey of 44 participants show that 95.5% believe forensic evidence to be more accurate than eyewitness testimony. The majority, 77.3%, found DNA analysis to be the most accurate or reliable forensic method.

Table 1.

Methods:	Hair	Fingerprint	DNA	Tool	Blood
Percentage (out of 44):	2.3	15.9	73.3	0	4.5

The results of the second survey of 25 participants show that 80% chose one of the suspects shown in the video 85% of those that chose 1-6 would agree that their choice may be incorrect given DNA evidence that contradicts their choice. 60% of those that chose not shown would agree that their choice may be false given DNA evidence that contradicts their choice.

Table 2.

(Percentages)	Those that selected 1-6 or not shown	Would consider memory could be flawed (% of: 1-6 or not shown)
Suspect 1-6	80	85
Not Shown	20	60

The majority of the participants found forensic evidence to be more accurate and given a chance to identify someone from a lineup, the majority would be willing to admit that their decision could be false and would go back on their choice based on the findings of forensic evidence. However, an event in which a person physically sees someone else in the act of a crime, from petty theft to murder, would increase their ability to recall the suspect's features as it is relevant and if they are going to speak with investigators the event may be on their mind more than the participants in this experiment. These findings can be generalized to incorporate most of the public's view of forensic evidence. The scientific method and the search for knowledge have become commonplace in society today. As time progresses so will humanity and technology. To find it proper for the uncertainty of the mind to have such a pivotal role in convincing the jurors of the American justice system whether or not a defendant is truly guilty. An eyewitness working with law enforcement and investigators would provide a clearer and scientific finding of guilt if done professionally and appropriately. Given there is a reform in the use of eyewitness testimony in court and a structured and cautious method for collecting forensic evidence, it could provide a much lower rate of wrongful conviction, and a basis on which convictions can be safely made.

Discussion

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