The impact the CSI Effect has on forensic science.

Forensic science is an area of law enforcement gaining more popularity in recent years. CSI is an acronym for Crime Scene Investigation. Forensic science plays an increasingly important role solving crimes and in court room testimony. Some Attorneys, Forensic Scientists and Investigators claimed to have noticed that crime related television shows have had an impact on how jurors evaluate evidence in the court room. This has become known as the “CSI Effect.”

Researcher Durnal defines the CSI effect as a phenomenon that has “stemmed from and refers to the impact that CSI and related shows have on the ability of trial juries to objectively hear testimony and make decisions without biasing those decisions on information obtained outside the courtroom proceedings” (Durnal 2).

Different researchers have suggested that CSI-type shows have impacted society in several ways. The most common impact many researchers have suggested is juries are less inclined to convict unless the quantity and quality of forensic evidence is comparable to that depicted in these shows; however, this view is not uniformly held. Contrary to this, some researchers believe that these shows have made juries smarter and more capable of evaluating forensic evidence. Others do not necessarily believe there has been any systemic impact on juries either way. Researchers have also suggested that these shows have impacted society outside the court room, including: Whether these shows teach criminals how to commit a crime without leaving any evidence, whether the rapid growth of forensic science majors at American colleges and universities is an indication of a growing, renewed interest in physical science by young
adults caused by these shows. This paper will examine these aspects of the CSI Effect, including any possible solutions, such as what actions investigators can take to mitigate any negative impacts.

What is Forensic Science?

Forensic science is a term that is heard on a regular basis in the world these days. “Forensic science is the application of science to the criminal and civil laws that are enforced by police agencies in a criminal justice system” (Saferstein 5) Forensic science includes several disciplines, such as chemistry, biology, and computer technology. The role of forensic science in solving crimes includes collecting and analyzing the evidence found at a crime scene. It also provides the scientific basis for court room testimony to help prove or disprove events related to the crime.

A Forensic Scientist is “skilled in applying principles and techniques of physical and natural sciences to the analysis of many types of evidence” (Saferstein 16).

Crime Shows

Over the last several years, there have been an increasing number of crime shows that involve the use of forensic science. These shows include fact-based documentary style shows such as Cold Case Files, The FBI Files, and The New Detectives, and fictional dramas which often draw their storylines from real life news events, such as Bones, Castle, Cold Case, Law and Order, and CSI. CSI, as well, as other crime related shows are watched on a daily basis by
several Americans today. Donald Shelton, a researcher, as well as, a trial judge reported that “according to 2006 weekly Nielsen rating” at least “70 million people watched one of the three CSI shows” (Shelton 34). However, before discussing how these shows may impact how jurors evaluate forensic evidence, it will be useful to discuss the types of evidence and the differences between these shows and the courtroom.

**Direct Evidence Vs. Circumstantial Evidence**

In a trial, a lawyer will assert a certain set of facts and use evidence to prove each fact to prove their case. The opposing lawyer will try to impeach assertions they believe to be unfavorable and offer other assertions to prove their case. Both lawyers may offer direct evidence, circumstantial evidence, or a combination of the two.

“Direct evidence relates immediately to the allegation being tested” (www.criminal-law-lawyer-source.com), i.e., direct evidence proves that a specific assertion is factual without requiring any assumptions or inferences. For example, if the Witness observes the Accused holding a gun, that fact is proven solely by the Witness’ sworn testimony. Ownership of the gun is a fact proven solely by the gun’s serial number combined with its registration in the Accused’s name. The fact that the bullet was fired from the Accused’s gun and the presence of gun powder residue on the Accused’s hand is proven solely by the ballistics tests. None of these facts requires any assumptions or inferences to prove.

Circumstantial evidence is “indirect evidence inferred from circumstances which afford a certain presumption, or appear explainable only on one hypothesis” (Oxford English Dictionary). It includes a certain set of events, or circumstances, which leads the juror to a conclusion of what
happened based on a reasonable inference, but not direct evidence. For example, the Witness sees the Accused holding the gun enter the room where the Victim is, hears the Victim and Accused arguing, hears the gun shot, sees the Accused run out carrying the gun, and sees the Victim wounded when responding to cries for help. Everything the Witness actually sees is Direct Evidence but the Witness did not actually see the Accused shoot the Victim. However, based on the circumstances, the Witness can reasonably infer that the Accused shot the Victim. Circumstantial evidence may be refuted by offering alternate, reasonable explanation for the events observed.

Forensic evidence is direct evidence. In other words, the match of a fingerprint on a weapon to an Accused, the match of DNA evidence on a Victim to an Accused, or the match of rifling marks on a bullet to a specific gun, can be scientifically proven and require no inferences. However, forensic science cannot determine the circumstances of how or why, the fingerprint or DNA got there or who pulled the trigger. Answering these questions usually requires drawing an inference from the established circumstances. In other words, forensic evidence is generally direct in nature but determining its significance may be subject to the available circumstantial evidence.

The jury’s role is to evaluate the meaning and reliability of all evidence. If the jury does not have confidence in the evidence, it may choose to discount it. An opposing lawyer’s method to discredit evidence differs depending on if the evidence is direct or circumstantial. For direct evidence, the opposing lawyer will attempt to disprove the accuracy of the facts presented. For example, the accuracy of eyewitness testimony, scientific evidence, and scientific testimony will be challenged. The jury may not actually see or understand all direct evidence, especially the results of scientific tests. Therefore, the Lab Technician is called upon to provide direct
testimony about the test results and their scientific meaning. Not only must the jury have confidence in the science, they must have confidence in the Lab Technician testifying in order to accept the evidence and properly weigh its meaning and significance to the case. Sloppy testing methods or testimony by the Lab Technician can undermine the jury’s confidence in the evidence provided. Therefore, direct evidence may be discredited by challenging the validity of the science, the accuracy of the results, or the qualification of the Lab Technician. Even a misperception about the reliability of scientific evidence and testimony can impact the jury’s opinion. In contrast, the opposing lawyer will challenge circumstantial evidence by offering the jury other “reasonable” explanations to explain the circumstances surrounding the facts. For example, a defense attorney may claim the Victim’s blood got on the Accused’s shirt when the Accused came to the Victim’s aid, rather than as a result of assaulting him.

**TV Investigations and Courtroom Vs. Real-Life**

In order to understand the impact that television has had on the perception of forensic science in courtroom trials, it is first necessary to look at the differences between how forensic science investigations are portrayed on television versus how it is actually conducted in real life and presented in real life court rooms. However not all shows portray forensic science in the same manner.

Generally these shows fall into two categories; 1) Shows whose purpose is to educate and entertain; 2) Shows whose sole purpose is to entertain the audience. Shows whose purpose is to educate and entertain include *Forensic Files, FBI Files, Cold Case Files*, and *New Detectives*. Shows whose purpose to entertain includes *CSI, Law and Order, Bones, Cold Case*, and *Castle*. 
Shows in the first group generally attempt to portray all aspects of an investigation, including forensic science, as realistically as possible. For example these shows clearly illustrate that sometimes it takes a long time to solve a crime; that technology is not always available to analyze the evidence until years later; solving a crime sometimes requires many people with many different skills; that sometimes investigators and scientists are human beings who are not perfect; and that investigators and scientists act in a professional manner according to procedures. In contrast to this, shows in the second group tend to imply that most crimes are solved quickly; that the best technology and equipment are always available; that one scientist has all the training to perform multiple scientific disciplines; that investigators and scientists hardly make mistakes; and that the investigators and scientists act on impulse and in an unprofessional manner at times.

In general investigators, scientists, and attorneys, as well as forensic science itself, are portrayed more realistically in the first group than in the second group. However when shows such as Law and Order advertise their storylines as being “ripped from the headlines” it may create the impression that they are more accurate than they really are.

The CSI Effect within the Courtroom

People who watch crime dramas have different opinions on how forensic science is used in real life investigations and how the results should be presented in the court room. Some citizens have acquired their outlook on forensic science from television crime dramas. These opinions include how much evidence can be recovered from a crime scene, and when and how the evidence should be tested, used, and presented. These opinions, depending on their accuracy,
maybe either a good or bad factor impacting how a jury member evaluates evidence in a courtroom trial.

Shelton completed a study where he surveyed potential jurors, with the goal of determining “what the potential jurors expected to see in terms of evidence” (Shelton 35). Based on Shelton’s study it was found that “those who watch CSI generally had higher expectations than non-CSI viewers” (Shelton 36). Shelton’s study found CSI viewers hold higher expectations regarding the availability, processing, and use of forensic evidence than non-viewers. Shelton concluded that maybe CSI made them “better informed jurors” (Shelton 36).

The television crime dramas do not accurately portray the job of a forensic scientist, a crime scene investigator, a detective, or a prosecuting attorney. “Their jobs require attention to detail; strong mathematics, scientific, analytical, and communication skills; and an inquisitive mind. Creativity also may be useful because, unlike their TV counterparts most crime-scene investigation departments do not have an unlimited budget for equipment” (Jones 9). The television crime dramas often combine several peoples’ jobs into one. A real criminal investigation often includes numerous people with different skills from different agencies. “TV crime fighting and crime solving dramas might show all of these occupations, but they might be all rolled into one worker” (Jones 7).

Television crime dramas may change the behavior and expectations of courtroom participants, including the attorneys, law enforcement officers, and jurors. The Economist Newspaper reported that a study carried out by Dr Robbers in 2008 showed attorneys feel jurors have been impacted by shows such as CSI. The article stated “62% of defense lawyers and 69% of judges agreed that jurors had unrealistic expectations of forensic evidence” (“The CSI Effect”). However, Researchers Baskin and Sommers state that “some studies suggest that jurors
do not have unrealistic expectations regarding the presentation of forensic evidence” (Baskin and Sommers 98). “The Economist visited the school for a story on "The CSI Effect”—that unfortunate legal train wreck that is the result of jury pools being simultaneously over-informed, under-informed and misinformed about forensic investigation science by prime-time cop shows” (Koerth-Baker).

Any unrealistic expectations can undermine the credibility and expertise of the Forensic Scientist and Investigators. Television shows like CSI have also hurt the strength of a forensic scientist’s testimony in the court room. Forensic scientists are called into the court room to give expert testimony on the procedures and results conducted in the laboratory on the evidence. There are cases where the jurors do not believe that the forensic scientist or investigator is doing their job correctly due to what they have seen on the television shows. Not only do the unrealistic expectations hurt a Forensic Scientist and Investigator, it also impacts prosecution and defense attorneys in the courtroom. They too are also finding that the CSI effect is impacting their jobs, such as how they present evidence in the courtroom.”Prosecutors in the United States are now spending much more time explaining to juries why certain kinds of evidence are not relevant” (“The CSI Effect”). Not only are the prosecutors feeling the impact from television crime dramas but the defense attorneys are also feeling the impact. They find it hard to explain to juries the differences. “They find themselves at pains to explain that one of television’s fictional devices—an unequivocal match between a trace of a substance found at a crime scene….whether it be fingerprints, DNA or some other kind of evidence—is indeed generally just fiction” (“The CSI Effect”)

According to Durnal “shows such as CSI put forth a perception that there is an ample amount of evidence left behind at every crime scene, as well as, it being simple for the scientist
to find” (Durnal 5). However, other researchers believe that the CSI effect has not affected the jurors views of forensic science presented in the court room. Jurors often expect to see more forensic evidence, such as DNA, fingerprints, and blood spatter, than the Investigator and Prosecutor deem necessary. “Jurors now demand expensive and often unnecessary DNA tests, handwriting analyses, gunshot residue testing, and other procedures that are not pertinent to the case” (Heinrick 59).

In a television crime drama, the forensic evidence collected from the crime scene is “always nearly correct” (Dutelle 113) and the “detective is never wrong” (Dutelle 113). An actual crime scene “does not have physical evidence” or as much evidence present at the scene as portrayed on television (Dutelle 113). However, jurors may believe that more evidence should have been collected or additional tests should have been performed. This belief may lead jurors to question the training, qualification, and job performance of a forensic scientist or crime scene investigator.

The lack of physical evidence has led jurors to acquit defendants despite other strong evidence. Researcher Jeffrey Heinrick discusses how this type of situation occurred in the Robert Blake murder trial. Heinrick talks about how the “physical evidence was lacking, but the witness testimony and the odd behavior of Mr. Blake himself was damning” but “due to a lack of gunshot residue and blood on his clothes, the jury voted acquit Robert Blake”(Heinrick 59).

Television crime dramas contain both circumstantial and direct evidence, but they portray both types of evidence coinciding to make all the evidence come together to tell a perfect story of events. This is an inaccurate picture of how investigations of a crime scene occur. When an actual investigation occurs the two types of evidence may or may not be present.
Crime shows also portray an inaccurate use of how forensic science is used in a real forensic laboratory with respect to the instruments and technology. Lovgren asked “Dean Gialamas, the director of a crime laboratory” in California her opinion of shows such as CSI and she stated that “the gadgetry” seen on those shows are “very close to what they have” in an actually crime laboratory, but that “the major difference is the application” of how “some of the technology” on CSI is used (Lovgren 2). Examples include how quickly DNA and fingerprint evidence can be processed. Television crime dramas imply that complicated evidence tests can be completed by the scientist much more quickly than is realistic. In real life, evidence testing takes longer because tests are complicated and real crime laboratories handle numerous cases. Lovgren explains how the “workload is so severe that forensic scientists may work two dozen cases at the same time” (Lovgren 2). On the crime show television dramas the investigators are only assigned a case or two, when in real life there are a lot more crimes being committed. Researcher Heinrick states that “crime labs are already backed up to full capacity, often waiting months, or even years to provide tangible evidence” (Heinrick 60). There are several crimes that go unsolved for years due to the fact that the evidence or technology was not available at the time the crime was committed. Analyzing forensic evidence is a process that takes time and accuracy and should not be rushed. If the process is rushed it could cause an important piece of evidence to be analyzed wrong or misinterpreted. Heinrick discussed the case of Richard Ramirez, also known as the Night Stalker, in which “forensic scientists spent two years carefully analyzing and interpreting the evidence” (Heinrick 60). Crime laboratories and other agencies have “increased their efforts”, as well as, “spent money to acquire modern technology and training that produces reliable results” (Dutelle 114). These types of actions have been taken
because crime laboratories “feel the need to improve their forensic capabilities” even though the areas in which they are making the improvements may not be used very often (Dutelle 114).

Agencies are feeling the impact of the CSI effect by changing procedures when it comes to collecting evidence and how other jobs in the field for forensic science are being carried out, such as, a crime scene investigator. Some of the changes include how the evidence is collected, how much evidence is collected and what tests are performed in the laboratory on the evidence. “Investigators, crime scene technicians, and officers are finding themselves collecting and booking more evidence than they did in the past. This is happening because they have found that failing to do so is pointed to as incompetence or inefficiency” (Dutelle 114). These professionals should be trusted by people in society to complete their job and duties. Society watches shows about doctors, nurses, engineers, and many more various careers without analyzing how the job is being completed in regards to those real life situations.

There are those who would argue that these television shows have had a positive impact. Recall that Donald Shelton’s study mentioned earlier, found CSI viewers hold higher expectations regarding the availability, processing, and use of forensic evidence than non-viewers and concluded that maybe CSI made them “better informed jurors” (Shelton 36). Is there a benefit to having better informed jurors?

In recent years the pace of DNA exonerations has grown across the country. According to The Innocence Project,

“In each case where DNA has proven innocence beyond doubt, an overlapping array of causes has emerged – from mistakes to misconduct to factors of race and class. Those exonerated by DNA testing aren’t the only people who have been wrongfully convicted
in recent decades. For every case that involves DNA, there are thousands that do not. Only a fraction of criminal cases involve biological evidence that can be subjected to DNA testing, and even when such evidence exists, it is often lost or destroyed after a conviction. Since they don’t have access to a definitive test like DNA, many wrongfully convicted people have a slim chance of ever proving their innocence” (“UnValidated”).

The most common causes of wrongful convictions include eyewitness misidentification, invalidated or improper Forensic Science, false confessions / admissions, Government misconduct, informants or snitches, bad lawyering. The chart below represents contributing causes confirmed through Innocence Project research.

**Contributing Causes of Wrongful Convictions (first 225 DNA exonerations)**

Total is more than 100% because wrongful convictions can have more than one cause.

According to this chart, invalidated and improper forensics are the second leading cause of wrongful convictions identified in the 225 overturned convictions in which The Innocence Project has been involved. For example, in one case, a Forensic Investigator testified that the
Defendant’s blood type matched blood at the crime scene, but failed to include testimony that the blood would have matched approximately 2/3 of men in the general population (“UnValidated”).

Knowing how common that blood type was, might have given the jury a different perspective regarding the significance of the blood type match for the Defendant. This is one example where direct scientific evidence needed the proper context with accurate circumstantial evidence. If just one juror had the background to question the context in which the scientific evidence was presented, a wrongful conviction may have been prevented. But how can an average citizen get any exposure to the benefits and limitations of forensic evidence? Some believe that forensic science in television shows, including fact-based shows and crime dramas, can help jurors’ ability to critically evaluate forensic evidence in court. However, there must be a balance in that jurors cannot be as critical of forensic evidence in court as to have unrealistically high expectations either. “David Michael Miranda, a forensic specialist for the Pasadena Police Department, disagrees” (“CSI”). Miranda believes “the plethora of forensic shows particularly CSI is positive for a lot of different reasons and there is a genuine need to understand what those reasons are and once we do that, it can be a positive force both inside and outside the profession” (“CSI”).

Researcher Schweitzer decided to conduct a study using a mock trial to determine how potential jurors who watched CSI viewed forensic evidence and compared it to those who do not watch CSI. He gave the mock trial transcript to 48 university students, who were possible jury candidates. Schweitzer had the students fill out a questionnaire based on their views of the trial and the forensic evidence. He questioned the students on their habits of watching television crime dramas. “Working with Michael Saks, an Arizona State University professor of law and
psychology, Schweitzer found that respondents who watched CSI-type shows were more skeptical of the forensic hair analysis than those who didn't. They also claimed a greater understanding of forensic science and greater confidence in their verdicts” (Boudreau).

The CSI Effect outside the Courtroom; a Growing Interest in Science:

The CSI effect has created an increased interest in science amongst the younger population, many of whom decide to pursue forensic science as a career.

Aric W. Dutelle, professor of Forensic Investigation at the University of Wisconsin-Platteville, stated “America has seen a 250% increase in the amount of programs featuring forensic science as a course of study” (Dutelle 114). Lovgren from National Geographic News reported there are “at least 90 forensic-science programs at universities across the United States” (Lovgren 1).

According to Bangert and Jones, crime show dramas “have greatly influenced how students, especially female students, perceive scientist at work” (Bangert and Jones 39). Numerous studies over the years have noted the significant unrepresentation of women in science and engineering careers.

However, if children and young adults do not recognize the dramatic license inherent in their favorite television crime drama, they may get an unrealistic view of forensic science as a career misleading these young viewers into believing that forensic science is as easy as on these television shows. To become proficient it requires a great deal of education and training, as well
as, it is more time consuming, and expensive to complete some of the testing completed on forensic evidence.

**Does CSI Teach Criminals to be Smarter?**

Is it possible that shows like CSI are actually helping criminals commit crimes and get away with them easier? Although these shows are not 100 percent accurate, they do show many aspects of forensic science such as the types of evidence is being collected at a crime scene by investigators. A person looking or thinking about committing a crime could watch CSI and get ideas of what type of evidence they should clean up and or not leave behind. Ray Peav, an individual who works for the L.A. County Sheriff’s Department in the homicide unit states that, "Things like cigarette butts, coke cans, beer cans, a sweaty hat band or blood or semen, hairs, all those things that used to be left are no longer being left at crime scenes" (Rowlands 1). Actions like this can hurt the amount of evidence present at a crime scene, which makes it harder in court to provide evidence like the jurors expect to see these days.

“Criminals watch television too and there is evidence they are also changing their behavior. Most of the techniques used in crime shows are, after all, at least grounded in truth. Bleach, which destroys DNA, is now more likely to be used by murderers to cover their tracks. The wearing of gloves is more common, as is the taping shut--rather than the DNA-laden licking--of envelopes. Investigators comb crime scenes ever more finely for new kinds of evidence, which is creating problems with the tracking and storage of evidence, so that even as the criminals leave fewer traces of themselves behind, a backlog of cold-case evidence is building up” (Koerth-Baker).
Actions to Mitigate Negative Aspects of the CSI Effect

Are there actions that forensic scientists, crime scene investigators, lawyers, and law enforcement agencies can take to mitigate the negative aspects of the CSI effect? Aric Dutelle, a professor of forensic investigation suggested that agencies can overcome the CSI effect by taking several actions, such as

- “conducting frequent refresher training and taking a look at current case loads and determine the most appropriate training and technology necessary to efficiently and effectively work the cases presents” (Dutelle 114).
- Police departments should “implement the area of forensic investigation into their Citizen Police Academies to inform and educate the public as to the realities of forensic science in their area.
- “Hire educated and trained personnel with backgrounds in forensic investigation” (Dutelle 114).

These suggestions by Aric Dutelle can mitigate the negative aspects of the CSI effect by

- ensuring forensic scientists and investigators understand and adhere to proper scientific and investigatory procedures to reduce the chance of error
- ensuring lawyers fully understand the strengths and limitations of forensic evidence to enable accurate explanations to the jury
- improving the knowledge and understanding of the strengths and limitations of forensic evidence in the general public
At the beginning of a trial, judges warn jurors that they are to consider only the evidence presented in the court room; before sending the jury to deliberate, judges also provide detailed instructions to the jury regarding the applicable laws in the case. In cases requiring evaluation of forensic evidence, the judge should also explain to the juries the overall dramatization they typically see in television crime dramas and direct them not to compare court room evidence or proceedings to what they have seen in these shows.

**Conclusion:**

Overall the CSI effect has created both positive and negative impacts on forensic science, and how society views forensic science. Shows such as *Cold Case Files*, *FBI Files* and *Forensic Files* have positively portrayed the use of forensic science and how an actual investigation is conducted. Shows such as *CSI*, *Bones*, *Castle*, and *Law and Order* have seem to created both positive and negative impacts, though the negative impacts are more prevalent than the positive impacts. The negative impacts have created unrealistic expectations from jurors, but the positive impact has possible created smarter jurors. If the shows are able to create smarter jurors then maybe one day the criminal justice system will experience an even more positive impact and the negative impacts will not be as prevalent. It will be interesting to see how these shows have impacted the world years from now, will the impacts still be the same or will they have changed and if they have how so.
The direction the CSI Effect takes within the court room may range from negative to positive to neutral based on how, and if, the jury compares the court room evidence and proceedings. Whether the impact should be considered negative, neutral, or positive does not depend on whether the verdict is guilty or not guilty. Acquitting a defendant is not inherently better or worse than convicting the defendant guilty, just as conviction is not inherently better or worse than acquittal. Rather than judging the impact of the CSI Effect by the actual result of the trial, i.e., guilty or not guilty, it should be evaluated based on whether helped lead the jury to the correct verdict or mislead the jury to the incorrect verdict. If the jury is neutral, i.e., doesn’t even consider what they have seen in these television shows or does not watch them, there should be no impact. If the jury understands the dramatization involved in the television crime dramas then, at worst, there should be no impact; if these television shows have helped make jury members smarter, i.e., more informed about the strengths and limitations of forensic evidence, then the jury may arrive at a more informed, better reasoned verdict, in which case the CSI Effect can be considered to be positive. However, if these television shows result in misinformed jurors who have unrealistically high expectations regarding the quantity and quality of available evidence, or have blind faith in forensic evidence and forensic scientists, then the jury may arrive at a less informed, poorly reasoned verdict, in which case the CSI Effect can be considered to be negative. Understanding and managing the CSI Effect within the court room is important to the credibility of our criminal justice system and public safety. Incorrect acquittals allow criminals back out into society. Incorrect convictions rob innocent people of their freedom. Whether these shows help criminals elude capture is a case-by-case determination. Much depends on the criminals’ intelligence and ability to separate fact from fiction. In any event, police will have to remain sensitive to this possibility because Freedom of Speech protects television networks’
right to produce and televise these shows. It is likely these shows are contributing to the renewed interest in science among young adults. This can only be positive for our Nation. For those that are encouraged to obtain a science degree, the Nation’s scientific abilities improve even if they do not pursue forensic investigations. Further, these shows appear to be helping to reduce the traditional gender gap in the sciences.

Works Cited

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