

# Beyond Frequency: Perceived Realism and the CSI Effect

Evelyn M. Maeder\* and Richard Corbett

Carleton University

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*Bien que policiers, avocats, juges, voire certains membres de la communauté, croient que les émissions télévisées de type CSI ont eu un impact important sur le système de justice pénale (impact nommé « l'effet CSI »), des recherches empiriques n'ont pas démontré de lien entre l'écoute d'émissions policières et les verdicts. La littérature a néanmoins établi que de hauts taux d'écoute d'émissions policières sont liés à de plus grandes attentes concernant les preuves, différentes attitudes face aux types de preuves et différents niveaux (rapportés par les personnes elles-mêmes) de compréhension des preuves scientifiques. Cette étude tente d'élargir notre compréhension de l'influence de ce type d'émissions sur les attitudes, les attentes et les verdicts en examinant l'influence du réalisme apparent (c.-à-d. le degré auquel les émissions de télévision sont perçues comme étant des représentations réalistes et exactes du domaine dépeint) dans ce contexte, étant donné que certaines études ont identifié le réalisme apparent comme étant un modérateur des effets de la télévision sur les attitudes. Les participants durent jouer le rôle de faux jurés et lire la transcription d'un procès où la Couronne présentait des preuves génétiques. Les participants devaient aussi indiquer la fréquence à laquelle ils regardaient des émissions policières (fréquence) ainsi que le taux de réalisme dont ils croyaient que ces émissions faisaient preuve (réalisme apparent). Les résultats ont révélé plusieurs effets intéressants directs et indirects tant de la fréquence d'écoute que du réalisme apparent sur le traitement des renseignements, les attitudes et les prises de décision du faux juré. Ceci semble indiquer que, afin de bien comprendre l'effet que les émissions policières peuvent avoir sur des jurés potentiels, la fréquence d'écoute et le taux de réalisme apparent doivent être pris en compte.*

*Mots clés : prise de décision du jury, l'effet CSI, perceptions des preuves médico-légales, perceptions des témoignages, réalisme apparent*

*Although police, lawyers, judges, and even some community members believe that CSI-type shows have seriously affected the criminal justice system (termed the CSI effect), empirical research has not demonstrated a link between crime television viewing and verdicts. However, the literature has established that*

\* Please address correspondence to Evelyn M. Maeder, Institute of Criminology and Criminal Justice, C 566 Loeb, Carleton University, 1125 Colonel By Dr., Ottawa, ON, K1S 5B6; e-mail [evelyn\\_maeder@carleton.ca](mailto:evelyn_maeder@carleton.ca)

*higher frequencies of crime television viewing are associated with increased expectations of evidence, different attitudes toward evidence types, and varying self-reported levels of understanding of scientific evidence. The present study sought to extend our understanding of the influence of crime television on attitudes, expectations, and verdicts by examining the influence of perceived realism (i.e., the degree to which television programs are viewed as accurate and realistic depictions of the field that they portray) in this context, since some research has identified perceived realism as a moderator of the effects of television on attitudes. Participants were asked to play the role of mock jurors and read a trial transcript in which the Crown presented DNA evidence. Participants also indicated the frequency with which they watched crime television programs (frequency), as well as the degree to which they felt these programs were accurate and realistic depictions of the criminal justice system (perceived realism). Results revealed a number of interesting direct and indirect effects of both frequency of viewing and perceived realism on mock juror information processing, attitudes, and decision making, suggesting that in order to truly understand the effect that crime television may have on potential jurors, their frequency of watching must be considered in combination with the degree to which they perceive these programs as realistic depictions of the justice system.*

*Keywords: jury decision making, CSI effect, perceptions of forensic evidence, perceptions of eyewitness testimony, perceived realism*

With an ever-increasing number of crime television programs in which forensic tests are used to solve a case in the course of a single episode, many criminal justice officials have begun to worry that the public may believe that forensic evidence is easy to obtain, quick to test, and free of potential flaws. These misperceptions would have their largest impact in the criminal courtroom, where members of the public serve as jurors, and thus, mistaken beliefs about availability, efficiency, and efficacy of forensic evidence could result in flawed verdict decisions.

The *CSI effect* refers to the perception commonly held by lawyers, judges, police officers, and even the general public that, due to the apparent availability of forensic evidence on crime television shows such as *CSI*, jurors may be either unwilling to convict in the absence of such evidence or overly reliant on it when it is presented (e.g., [Heinrick 2006](#); [Lawson 2009](#)). Thus far, most research has failed to establish a link between watching crime television and verdict decisions in simulated criminal trials. Specifically, most studies have not revealed an effect of mock jurors' crime television consumption *frequency* on the willingness to convict in the presence or absence of forensic evidence. The present

study sought to examine the effect of *perceived realism* (i.e., the degree to which an individual perceives the show to be realistic) of these programs, with the assumption that, even among those who watch crime television frequently, there may be important differences between individuals who believe that the television shows are realistic and accurate and those who do not. Specifically, we were interested in whether a CSI effect may result for those who find these shows to be accurate depictions of the criminal justice system, as opposed to for those who watch them purely for entertainment purposes, with an understanding of their unrealistic nature. Given the literature that suggests that perceived realism may influence the effect of television on attitudes (e.g., Busselle 2001; Taylor 2005), we sought to examine whether attitudes toward evidence and verdicts would vary as a function of the perceived realism of crime television.

We hypothesized that frequency of crime television consumption would be unrelated to major trial decisions, given that most studies have found no relationship between frequency of watching crime television and verdict decisions (e.g., Holmgren and Fordham 2011; Shelton, Kim, and Barak 2006), or at best have found an indirect relationship via perceptions of circumstantial evidence (Kim, Barak, and Shelton 2009). However, we suspected that those who believe that crime television shows offer a realistic depiction of the criminal justice system would be more likely to convict in a case involving DNA evidence, more likely to have positive attitudes toward DNA evidence, and more likely to perceive the DNA evidence as influential on their decision.

### **The CSI effect defined**

As described by Kruse (2010), a typical episode of *CSI* begins with the discovery of a dead body, often a victim of murder, and finishes with the confession and arrest of a suspect. The central focus of the *CSI* series is on forensic science, as opposed to other aspects of the criminal justice system. This television series also suggests that forensic evidence is the only valid authority in criminal investigations (Kruse 2010), while witness testimonies are deemed unreliable and are not considered credible sources of evidence (Mann 2005). The science depicted in *CSI* is idealized and provides a definite, unquestioned resolution to every case (Kruse 2010). Ley, Jankowski, and Brewer (2012: 62) argue that *CSI* portrays DNA testing as “common, swift, reliable, and instrumental in solving cases.” These misleading depictions have led some to believe that the overemphasis on forensic evidence and the portrayal of the

limitless availability of such evidence in *CSI* have the potential to distort a juror's perception of reality.

Specifically, the *CSI* effect hypothesizes that, as a result of unrealistic depictions of forensic evidence on crime television shows (such as *CSI*), jurors may be overly influenced by forensic evidence in the courtroom, leading to two distinct possibilities: 1) when no forensic evidence is present, jurors will acquit, and 2) when forensic evidence is present, jurors will convict, even if it is flawed or countered by other important evidence (e.g., [Heinrick 2006](#); [Lawson 2009](#)). The central perception is that these crime television shows create unrealistic expectations in those who watch them. In Canada, section 649 of the Criminal Code precludes jurors from speaking about their experiences during trials, and so we are unable to directly test whether a *CSI* effect exists by questioning jurors about their expectations and the potential influence of crime television post-trial. However, a great deal of survey and experimental research has tested for a *CSI* effect among a number of different groups.

### **The *CSI* effect: Perceptions within and outside of the criminal justice system**

According to [Houck \(2006\)](#), the media first began to report about a *CSI* effect in 2003, mostly on the basis of anecdotes from police officers and prosecutors. Since then, perceptions of this effect have been found to be pervasive among those involved in the criminal justice system.

#### **Lawyers**

[Heinrick \(2006\)](#) argues that the *CSI* effect poses a threat to both prosecution and defence lawyers. If forensic evidence is not available, jurors may deem other evidence as insufficient to render a guilty verdict, resulting in an increase in acquittals. On the other hand, if DNA evidence is available for the prosecution, jurors may be overly reliant on this information and ignore relevant exonerating evidence. According to [Lawson \(2009\)](#), prosecutors and defence lawyers are under the impression that the *CSI* series affects the ability of jurors to remain impartial at every stage of the trial process. [Cole and Dioso-Villa \(2009\)](#) conducted a review of surveys that focused on legal actors' perceptions of a potential *CSI* effect. The analysis revealed that prosecutors and defence lawyers believe that juries are heavily influenced by *CSI*-type television programs.

The belief in a negative impact caused by *CSI*-type shows has also been demonstrated through the study of 102 prosecutors by the [Maricopa County Attorney's Office \(2005\)](#) – 74% of the prosecutors indicated that they had tried a case in which jurors expected scientific evidence, and 45% felt that jurors focused on forensic evidence to the point of ignoring other types of evidence. Importantly, prosecutors reported suspicion that jurors who watch crime television shows such as *CSI* may be overly influential in jury deliberations due to a perception of expertise in 72% of cases. As a result of these beliefs, lawyers have begun to change the way they present cases ([Houck 2006](#); [Maricopa County 2005](#)). Therefore, it is clear that lawyers are concerned that jurors are influenced by *CSI*-type shows.

### **Police officers**

Police officers may share this concern. The results of a qualitative study by [Huey \(2010\)](#) indicate that most police officers feel that they experience the *CSI* effect through public queries about the conduct of investigations. The study revealed that police officers are concerned that the inaccurate depictions of police work in *CSI*-type shows have created a new standard of judgement in the public eye that real life police work cannot meet. According to the majority of officers interviewed, there is a potential for public trust in the reliability of police forces to decrease due to unrealistic expectations created by *CSI*-type shows. This decrease in trust and reliance has been shown in the results of [Stevens's \(2008\)](#) study on the *CSI* effect and legal actors. It was found that police reports and non-forensic evidence collected by the police have had a reduced effect on guiding prosecution strategies in recent years. According to the results, currently, lawyers are generally more concerned with presenting forensic evidence as opposed to police testimony because they feel that jurors will respond more favourably to forensic evidence. Finally, research has shown that some police officers have changed the manner in which they interact with the public in light of their perceptions of the *CSI* effect ([Stinson, Patry, and Smith 2007](#)).

### **Judges**

A small body of research suggests that judges are also very likely to believe that the *CSI* effect has an influence on jurors' decisions. A poll taken at a conference of Louisiana judges ([Toobin 2007](#)) found that every judge at the conference believed *CSI* has had major impacts on the trial process. Judges, like prosecutors and police, believe that the *CSI* effect

has led to an increasing number of wrongful acquittals of defendants on the grounds of insufficient forensic evidence (Shelton, Kim, and Barak 2006). Specifically, Hughes and Magers (2007) conducted a survey of 58 circuit court judges and found that 58.1% of judges responded *agree* or *strongly agree* to an item indicating that *CSI*-type television shows have had an impact on the administration of justice in their courtrooms. Fewer judges (53.4%) indicated that *CSI*-type shows have made it harder to convict defendants in their court, but three-quarters (75.7%) strongly agreed or agreed that *CSI*-type programs have increased jurors' expectations for forensic evidence. A year later, Robbers (2008) surveyed 89 judges and reported that 61% of judges felt that *CSI*-type shows had led to unreasonable expectations surrounding forensic evidence and only 1 judge indicated that the *CSI* effect is exaggerated.

### **Community members**

One study has attempted to determine whether the community at large is concerned about the existence of a *CSI* effect. Hayes and Levett (2013) surveyed community participants with regard to their crime television watching habits and asked them whether they had heard of the *CSI* effect. Overall, participants in this study were not aware of the effect (70% indicated that they had never heard of it), although, when provided with a definition, they tended to agree that it did exist and represented an unrealistic expectation of evidence. Notably, those individuals who were heavier consumers of crime television were more likely to have heard of the *CSI* effect and were more likely to report that shows such as *CSI* help to educate the public about investigative and evidentiary procedures.

Therefore, it is apparent that – at least for lawyers, judges, and the police, and even for some members of the general public – the so-called *CSI* effect is a source of concern that, as an effect of crime television, trials are not being adjudicated objectively by jurors. The next section will discuss whether empirical research supports this concern.

### **The *CSI* effect: Empirical research**

Several studies have attempted to determine the relationship between crime television viewing and decision making in cases with and without forensic physical evidence in order to establish the existence of the *CSI* effect. Much of this research supports the notion that jurors may have differing expectations as a result of watching *CSI*-type shows; however,

most of this research was unable to confirm a direct link between crime television and verdict outcomes.

### **Expectations for evidence**

Numerous studies that have assessed mock jurors' expectations of evidence have found that increased viewing of *CSI* and related shows is positively correlated with expectations for the presentation of scientific evidence during trials (Brewer and Ley 2010; Shelton et al. 2006; Smith, Patry, and Stinson 2007). Shelton et al. (2006) assessed evidence expectations of potential jurors in seven different case types. Findings suggested that participants generally had high expectations with respect to scientific evidence (including DNA, fingerprint, and ballistic evidence), irrespective of *CSI* viewing frequency. In addition, the specific comparison of *CSI* viewers to non-*CSI* viewers also revealed that frequent *CSI* watchers had consistently higher expectations with reference to each type of evidence – including non-scientific evidence, such as victim or witness testimony – compared to non-*CSI* watchers. These results were replicated in a later study by Shelton, Barak, and Kim (2009).

In a content analysis of the first two seasons of *CSI* and *CSI: Miami*, conducted by Patry, Stinson, and Smith (2008), the two most often portrayed types of evidence were DNA (shown in 18.9% of episodes) and fingerprint evidence (shown in 12% of episodes). Therefore, it is not surprising that those who watch these shows may believe that this evidence is readily available.

### **Knowledge about forensic evidence**

Schweitzer and Saks (2007) studied self-perceptions of knowledge regarding forensic evidence as a function of watching crime television in a group of 48 student mock jurors. Participants indicated how much they watched forensic-science-based shows (e.g., *CSI*) or general-crime-based shows (e.g., *Law and Order*). For both types of shows, those with increased viewing habits indicated that they had a better understanding of the tasks performed by forensic scientists. Those who watched more forensic-science-based shows were also more sceptical of the scientific evidence presented in a mock trial; this was not true for those who watched general-crime-based shows. Similarly, Brewer and Ley (2010) reported that participants who watched more crime television rated themselves as having a better understanding of DNA evidence.

### **Perceptions of forensic evidence**

Smith et al. (2007) found that watching crime television was significantly associated with higher reliability and accuracy ratings of DNA evidence (and marginally associated with these ratings of ballistics evidence). Similarly, Brewer and Ley (2010) found that participants who watched more crime television reported higher reliability ratings for DNA evidence. However, a study by Lieberman, Carrell, Miethe, and Krauss (2008) found that perceptions of DNA evidence did not vary as a function of crime-television consumption frequency.

### **Verdicts**

Empirical literature that has specifically studied the verdict outcomes of frequent *CSI* viewers has generally found limited or no support for the *CSI* effect on the juror decision-making process (Brewer and Ley 2010; Podlas 2006). Shelton et al. (2006) assessed the potential for the increased evidence expectations of *CSI* viewers to translate into verdict decisions. The results of the study found no significant difference between the verdict outcomes for *CSI* viewers and those for non-viewers. Therefore, the higher expectations with respect to scientific evidence reported by *CSI* viewers did not affect the juror decision-making process in terms of verdict decisions. These results were replicated in another study, conducted by Kim, Barak, and Shelton (2009), which found that frequent exposure to *CSI*-type shows had no direct influence on verdict outcomes for mock jurors. However, this study did indicate that frequent exposure to *CSI* had an indirect effect in cases involving only circumstantial evidence. Increased exposure to crime television resulted in an increase in expectations with respect to scientific evidence (suggesting a decrease in the perception of the value of circumstantial evidence), which, in turn, led to a reduction in the willingness to convict in cases involving only circumstantial evidence.

Lieberman et al. (2008) found that conviction rates in a case involving DNA evidence for the prosecution did not vary as a function of crime-television consumption frequency. Schweitzer and Saks (2007) also indicated a lack of effects on verdicts – though forensic science television viewers were less likely to convict in cases without forensic evidence, this difference did not reach statistical significance.

A recent study on the *CSI* effect with Canadian mock jurors and Australian jurors (Holmgren and Fordham 2011) found no support for



the notion that increased viewing of *CSI* is related to an increase in acquittals. As found in previous research, there was a relationship between frequency of viewing and the treatment of scientific evidence; however, this reported increase in reliance did not translate into verdict outcomes.

The one exception, thus far, is a study conducted by [Baskin and Sommers \(2010\)](#), who asked participants via a telephone survey with responses rated on a scale from 1 = *very likely* to 4 = *not at all likely* how likely they would be to convict an individual accused of rape and murder in the absence of scientific evidence. Their results indicated that the number of hours participants spent watching crime dramas was directly related to their willingness to convict in the absence of scientific evidence. Specifically, individuals who watched three or more hours per week of crime television reported a lower likelihood to convict without scientific evidence than did those who watched between zero and two hours. However, results from this study should be interpreted with caution. Participants did not evaluate case facts and evidence in a simulated trial; they were simply asked about their willingness to convict. This represents an attitudinal measure as opposed to a behavioural one, and in light of the research discussed above, it may not translate into actual verdict decisions.

In sum, empirical literature acknowledges the potential for *CSI* viewers to have higher expectations with respect to forensic evidence, perceptions of the value of that evidence, and self-reported understanding of that evidence, as compared to non-viewers. However, to date, there have been very few indications of the effects of these differences on verdict outcomes. Therefore, the theoretical concept of the *CSI* effect has yet to find substantial empirical support.

However, it is possible that the *CSI* effect has yet to be empirically established due to the way in which it has traditionally been operationally defined in the research literature. The overwhelming majority of research has tested for the effects of crime-television viewing frequency. We argue that it may be important to consider the perceived realism of crime television – that is, the degree to which individuals who watch these programs deem them to be realistic and accurate portrayals of the justice system. We suspect that perceived realism will be related to attitudes toward different types of evidence and the perceived influence of those evidence types in a criminal trial, potentially exerting a direct or indirect influence on verdict decisions.

Whether framed in terms of frequency or perceived realism, the CSI effect relies on the assumption that watching television can influence an individual's attitudes, an assumption that has been tested in other areas. The next section will describe theoretical support for the effect of television on attitudes.

## **The influence of television on attitudes**

### ***Cultivation theory***

Originally proposed by Gerbner (Gerbner and Gross 1976; Gerbner, Gross, Morgan, and Signorielli 1986, 1994; Gerbner, Gross, Morgan, Signorielli, and Shanahan 2002), cultivation theory suggests that television cultivates the public's perception of reality. Therefore, people's perceptions of how things work in the real world are heavily influenced by the depictions of television. For example, Kahlor and Eastin (2011) hypothesized that television may be one influence in the existence of a culture of violence toward women, and questioned a large sample with regards to their television viewing habits and acceptance of rape myths. Their results supported their predictions, indicating that daily television viewing was associated with greater endorsement of rape myths. In addition, Dudo, Brossard, Shanahan, Scheufele, Morgan, and Signorielli (2011) conducted a follow-up study to Gerbner, Gross, Morgan, and Signorielli's (1985) investigation of the effects of television viewing on perceptions of science, which had demonstrated that heavy television viewers had a less favourable perception of science than those who watched less television. The results of Dudo et al. (2011) demonstrated that depictions of science have changed over time and that, consequently, the influence of television on attitudes toward science has changed as well. These authors found no direct influence of television viewing on attitudes toward science, hypothesizing that this lack of an effect may stem from the fact that scientists are now generally portrayed in a positive light. However, they did observe an indirect effect, such that heavier television consumption was associated with lower levels of knowledge about science, which was, in turn, associated with more positive attitudes toward science. Thus, while the cultivation theory was developed when television viewing was quite different from the present, more recent research demonstrates that television is still quite influential in the formation and maintenance of attitudes. The following sections will discuss cultivation research investigating frequency of exposure and perceived realism on attitude change, laying the foundation for the present study.

### **Frequency of exposure**

Holmes and Johnson (2009) assessed the potential influence of frequency of viewing television programs that supported stereotypical gender roles in relationships. The results found a positive correlation between frequency of viewing and attitudes consistent with those advocated on the programs, indicating the potential influence of television on attitudes. The researchers hypothesized that these findings may have been due to the susceptibility of the target audience. Another study on the effects of viewing frequency and subsequent influence (Schiappa, Gregg, and Hewes 2006) found that individuals who frequently watched *Will & Grace* also reported positive attitudes toward gays and lesbians. It was also noted that causation could not be inferred, due to non-random sampling and the potential for participants to have previously formed attitudes toward the gay and lesbian community. An analysis of paranormal television shows and their viewers (Sparks and Miller 2001) has indicated that the majority of the viewers that frequently watched paranormal programs also held paranormal beliefs. However, it was also found that this effect was contingent on the viewer's previous experience with the paranormal. This contingency supports the argument that frequency of viewing popular television does not necessarily imply influence; certain individuals (i.e., those who hold pre-existing beliefs regarding the subject matter) may be more susceptible than others. Although it does appear that frequency of exposure to television programs has the potential to influence attitudes and beliefs, the uncertainties noted above suggest that it cannot necessarily be assumed that increased viewing frequency alone will result in altered attitudes or perceptions.

### **Perceived realism**

The influence of television on viewer beliefs may not have to do with frequency of exposure; rather, the influence may be contingent on the viewers' perception of the realism of the content. Research has demonstrated that information that is perceived to be real, as opposed to fictional, is more easily accessed later on (see Prentice and Gerrig 1999, for a review). Potter (1986) suggests that perceived realism may moderate the effect of television on social judgement. This implies that perceived realism may be more relevant than frequency of exposure when considering the effects of television on attitudes.

Taylor (2005) found that individuals who viewed a television excerpt of sexually permissive content and perceived the content as realistic held permissive attitudes on sexuality. The results indicate the potential for perceived realism of television to influence viewer attitudes. The results of another study on perceived realism of television content (Busselle 2001) suggest that perceived realism may increase the accessibility of presented content in recall. The study also suggested that an increase in the accessibility of such content caused the content to be used in the evaluation of similar information. Conversely, Nellis and Savage (2012) found that, while increased exposure to television news was related to higher levels of fear of terrorism, the perceived credibility of these news reports had no influence. However, the distinction between perceived credibility of news reports and perceived realism of fictional television shows must be noted.

This research demonstrates that perceived realism may be an important consideration in the effects of crime television on attitudes, expectations, and decision making in criminal cases. The possibility for television to selectively influence the beliefs and attitudes of individuals, based on their perceptions of the reality of programming content, has implications for the *CSI* effect. Thus, we sought to investigate the role of perceived realism in this context.

## **Method**

### ***Participants***

Participants in this study were 119 (36 [30%] men, 83 [70%] women) undergraduate students from a Canadian university, who ranged in age from 18 to 51 years old ( $M = 20.69$ ). Participants were recruited via the psychology department's electronic system and received course credit as compensation.

### ***Materials***

#### *Trial transcript*

Participants read a 12-page trial transcript involving a second-degree murder charge. This transcript was adapted from one used by Lieberman, Carrell, Miethe, and Krauss (2008); we modified the case somewhat by including eyewitness testimony for the defence and adjusted it to a Canadian context. In the trial, the Crown presented DNA evidence, and

the defence presented an eyewitness, who testified that the defendant was not the man he saw at the scene of the crime. Both the Crown and the defence provided opening and closing arguments. Jury instructions with regards to the presumption of innocence, burden of proof, and second-degree murder charge were also provided.

### *Juror questionnaire*

Participants first provided a verdict for the second-degree murder charge, as well as a corresponding confidence rating, scored on a scale from 0 (*not at all confident*) to 10 (*very confident*). They then answered a series of questions about each piece of evidence (how compelling, influential, etc. they believed the DNA and eyewitness evidence to be), each witness (the degree to which the witness was honest, unbiased, etc.), and the defendant (their impressions of the defendant's character, including characteristics such as likeable, aggressive, and trustworthy), each scored on 1–9 scales (see Appendix A for a list of these questions). The scores for impressions of the defendant's character were reverse-coded when appropriate, such that higher scores reflected more positive impressions. Finally, participants answered questions (adapted from Lieberman et al. 2008) about their attitudes toward DNA evidence and questions about eyewitness memory (Narby and Cutler 1994). For the attitudes-toward-DNA-evidence scale (see Lieberman et al. 2008, for the complete scale), participants rated their agreement with statements such as "DNA is the most reliable type of physical evidence we have today" and "[i]f a defendant's DNA matches DNA left at the crime scene, then the defendant is guilty," on a scale from 1 (*very strongly disagree*) to 10 (*very strongly agree*). For the attitudes-toward-eyewitness scale (see Narby and Cutler 1994, for the complete scale), participants rated their agreement with statements such as "[t]he strongest evidence is provided by eyewitnesses" and "[e]yewitnesses generally give accurate testimony in trials," on the same scale.

### *TV questionnaire*

Participants indicated their frequency of watching certain television shows, including *CSI: Las Vegas*, *CSI: Miami*, *Law and Order*, and *Law and Order: SVU*. They were also asked a series of questions about their perceptions of these shows, including the degree to which they are realistic, informative, and accurate (scored on 1–9 scales; see Appendix A for a list of these questions for one program [*CSI: Las Vegas*] – the same questions were asked for all four programs).

## **Procedure**

Participants completed the study in the laboratory. After providing informed consent, they read the trial transcript and completed the juror questionnaire, followed by the TV questionnaire. They were then debriefed and compensated for their participation. All participants were treated according to Research Ethics Board guidelines.

## **Measures**

Several measures were created by combining scale items into a single score:

**Continuous verdict measure.** A continuous verdict variable was created by multiplying verdict ( $-1 = \text{not guilty}$ ,  $+1 = \text{guilty}$ ) by confidence rating ( $1 = \text{not at all confident}$ ,  $10 = \text{very confident}$ ), resulting in a scale from  $-10$  (very confident that the defendant is not guilty) to  $+10$  (very confident that the defendant is guilty).

**Perceived influence of eyewitness testimony.** Participants' ratings of the degree to which the eyewitness testimony was compelling, influenced their verdict, and was credible (see Appendix A, question 3) were combined into a single score with strong reliability ( $\alpha = .87$ ).

**Perceived influence of DNA evidence.** Participants' ratings of the degree to which the DNA expert's testimony was compelling, influenced their verdict, and was credible (see Appendix A, question 4) were combined into a single score with adequate reliability ( $\alpha = .66$ ).

**Perceptions of the eyewitness.** Participants' ratings of the eyewitness (see Appendix A, question 5) were combined into a single score with strong reliability ( $\alpha = .83$ ).

**Perceptions of the expert presenting DNA evidence.** Participants' ratings of the DNA expert (see Appendix A, question 6) were combined into a single score with strong reliability ( $\alpha = .87$ ).

**Defendant impressions.** After reverse-coding when necessary to ensure that higher scores represented more positive evaluations, participants' ratings of the defendant's character (see Appendix A, question 7) were combined into a single score with strong reliability ( $\alpha = .89$ ).

**Attitudes toward eyewitness memory.** Participants' scores from the [Narby and Cutler \(1994\)](#) measure were combined into a single score reflecting attitudes toward eyewitness memory ( $\alpha = .80$ ).

**Attitudes toward DNA evidence.** Participants' scores from the [Lieberman et al. \(2008\)](#) measure were combined into a single score reflecting attitudes toward DNA evidence ( $\alpha = .60$ ).

**Crime TV frequency.** Items tapping participants' reported frequency of watching the four crime television shows were combined into a single scale of overall frequency of watching crime television. This was done by transforming their responses from the frequency question (see Appendix A, question 8) into a numerical score for each program (from 0 = "I have never seen this show" to 4 = "I watch this show every week that it airs"), and summing the scores from the four programs.

**Crime TV realism.** A scale of the perceived realism of crime television programs was created by combining participants' mean ratings of the four television shows' realism, accuracy, and informational value (see Appendix A, question 9) into a single score with very strong reliability ( $\alpha = .97$ ).

## Results

To test whether crime-television viewing frequency and perceived realism would interact to influence verdict decisions, we conducted a  $2 \times 2$  ANOVA with frequency of watching crime television (median split<sup>1</sup> into low, high) and perceived realism of crime television (median split into low, high) as the independent variables and continuous verdict as the dependent variable. This analysis revealed no main effects or interaction, suggesting that there are no direct effects of crime television consumption or perceived realism on verdicts.<sup>2</sup>

### **TV and attitudes**

We conducted correlational analyses to investigate the relationship between frequency of viewing and perceived realism of crime shows and attitudes toward the two evidence types included in this study (eyewitness testimony and DNA evidence). We observed significant relationships between perceived realism and both attitudes toward DNA ( $r = 0.26, p < .001$ ) and attitudes toward eyewitness testimony ( $r = 0.21, p < .01$ ). The frequency of watching crime television, however, was unrelated to these attitudes ( $p$ 's  $< .05$ ).

**Path analysis**

Because we observed relationships between perceived realism and attitudes toward evidence types, we wanted to examine how frequency of watching crime television and perceived realism of crime television might indirectly influence verdict via attitudes toward evidence and perceptions of witnesses presented with such evidence. To do this, we conducted a path analysis, testing a fully saturated model. The first step included crime television consumption (frequency) and perceived realism as predictors, and attitudes toward DNA evidence and attitudes toward eyewitness evidence as criterion variables (see Table 1). The second step used perceptions of the expert presenting DNA and perceptions of the eyewitness as criterion variables, and all aforementioned variables as predictors (see Table 2). The third step used perceived influence of the DNA evidence, perceived influence of the eyewitness testimony, and defendant impressions as criterion variables, with all

**Table 1: Summary of regression analyses for step 1 (N = 99)**

Criterion variable	Attitudes toward DNA Evidence			Attitudes toward Eyewitness Memory		
	B	SE B	$\beta$	B	SE B	$\beta$
Crime TV Frequency	.03	.07	.03	.06	.07	.08
Crime TV Realism	.32	.07	.42**	.14	.07	.19*
R <sup>2</sup>	.18			.04		

\*  $p < .05$ .  
 \*\*  $p < .01$ .

**Table 2: Summary of regression analyses for step 2 (N = 99)**

Criterion variable	Perceptions of Expert Presenting DNA Evidence			Perceptions of Eyewitness		
	B	SE B	$\beta$	B	SE B	$\beta$
Crime TV Frequency	.01	.07	.01	-.05	.06	-.07
Crime TV Realism	-.11	.08	-.15	.04	.07	.06
Attitudes toward DNA Evidence	.45	.10	.47**	-.26	.09	-.29**
Attitudes toward Eyewitness Memory	-.16	.10	-.16 <sup>†</sup>	.20	.09	.21*
R <sup>2</sup>	.22			.13		

<sup>†</sup>  $p < .10$ .  
 \*  $p < .05$ .  
 \*\*  $p < .01$ .



aforementioned variables as predictors (see Table 3). The fourth and final step used continuous verdict as the criterion variable, and all other variables as predictors (see Table 4). This analysis demonstrated a number of significant direct and indirect effects. See Figure 1 for the complete model and significant paths.

**Table 3: Summary of regression analyses for step 3 (N = 99)**

Criterion variable	Perceived Influence of DNA Evidence			Perceived Influence of Eyewitness Testimony			Defendant Impressions		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
Crime TV Frequency	-.09	.11	-.08	-.21	.06	-.23**	.01	.05	.03
Crime TV Realism	.31	.13	.25*	.03	.07	.03	.02	.06	.04
Attitudes toward DNA Evidence	-.03	.18	-.02	.09	.10	.07	-.29	.08	-.37**
Attitudes toward Eyewitness Memory	-.29	.16	-.17 <sup>†</sup>	.54	.09	.42**	.11	.08	.13
Perceptions of Expert Presenting DNA Evidence	.56	.17	.34**	-.35	.09	-.28**	-.08	.08	-.10
Perceptions of Eyewitness	-.18	.18	-.10	.51	.10	.37**	.21	.08	.23*
R <sup>2</sup>				.61			.32		

<sup>†</sup>  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

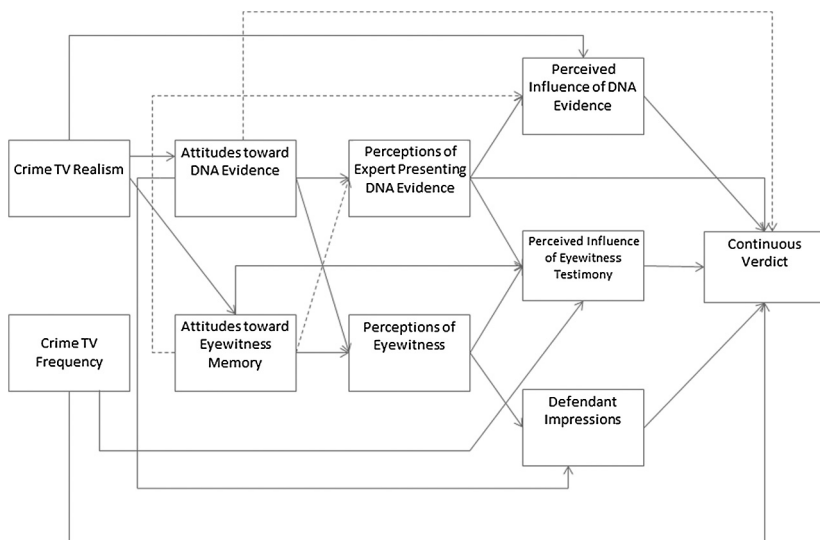
**Table 4: Summary of regression analysis for step 4 (N = 99)**

Criterion variable	Continuous Verdict		
	B	SE B	$\beta$
Crime TV Frequency	-.63	.24	-.18*
Crime TV Realism	.05	.26	.01
Attitudes toward DNA Evidence	.71	.40	.15 <sup>†</sup>
Attitudes toward Eyewitness Memory	.07	.40	.01
Perceptions of Expert Presenting DNA Evidence	.87	.40	.18*
Perceptions of Eyewitness	-.62	.43	-.12
Perceived Influence of DNA Evidence	.47	.21	.16*
Perceived Influence of Eyewitness Testimony	-1.07	.39	-.28*
Defendant Impressions	-1.70	.46	-.29**
R <sup>2</sup>	.64		

<sup>†</sup>  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

**Figure 1: Continuous verdict model**

Overall, our predictors significantly affected *continuous verdict*, explaining 60% of the variance in mock jurors' guilt certainty. As depicted in [Figure 1](#) and detailed in [Table 4](#), continuous verdict was directly predicted by the perceived influence of the DNA evidence presented by the Crown (those who perceived the DNA evidence as more influential were more certain of the defendant's guilt), perceptions of the expert presenting the DNA evidence (those who rated the expert more favourably were more certain of the defendant's guilt), perceived influence of the eyewitness evidence presented by the defence (those who perceived the eyewitness testimony as more influential were less certain of the defendant's guilt), defendant impressions (those who rated the defendant more favourably were less certain of his guilt), and frequency of crime television viewing (those who reported higher frequency of viewing crime television were more certain of the defendant's guilt). Attitudes toward DNA evidence also predicted continuous verdict at the marginally significant level ( $p < .10$ ), such that those with more positive attitudes toward DNA evidence were more certain of the defendant's guilt.

[Table 3](#) displays that perceived influence of the DNA evidence presented by the Crown was significantly predicted by perceived realism of crime television (those who perceive crime television as more realistic rated the DNA evidence as more influential) and perceptions of the expert

presenting DNA evidence (those who rated the expert more favourably were more influenced by the evidence he presented) and was marginally significantly predicted by attitudes toward eyewitness memory (those with more positive attitudes toward eyewitness memory were less influenced by the DNA evidence).

Perceived influence of the eyewitness evidence presented by the defence was significantly predicted by perceptions of the expert presenting DNA evidence (those who rated the expert more favourably rated the eyewitness evidence as less influential), attitudes toward eyewitness memory (those with more positive attitudes toward eyewitness memory were more influenced by its presentation), perceptions of the eyewitness (those who rated the eyewitness more favourably were more influenced by his evidence), and frequency of crime television viewing (those who reported higher frequency of viewing crime television rated the defence's eyewitness evidence as less influential). See [Table 3](#) for details.

Defendant impressions (i.e., ratings of the defendant's character) were significantly predicted by perceptions of the eyewitness (those who rated the defence's eyewitness more favourably also rated the defendant more favourably) and attitudes toward DNA (those with more positive attitudes toward DNA evidence rated the defendant less favourably). See [Table 3](#) for details.

Perceptions of the Crown's expert, who presented the DNA evidence, were significantly predicted by attitudes toward DNA evidence (those with more positive attitudes toward DNA rated the DNA expert more favourably) and marginally significantly predicted by attitudes toward eyewitness memory (those with more positive attitudes toward eyewitness memory rated the DNA expert less favourably). See [Table 2](#) for details.

Perceptions of the defence's eyewitness were significantly predicted by attitudes toward DNA evidence (those with more positive attitudes toward DNA rated the eyewitness less favourably) and attitudes toward eyewitness memory (those with more positive attitudes toward eyewitness memory rated the eyewitness more favourably). See [Table 2](#) for details.

Finally, attitudes toward DNA and attitudes toward eyewitness memory were both significantly predicted by perceived realism of crime television, such that those who rated crime television as more realistic had more positive attitudes toward both types of evidence. However,

frequency of crime television viewing was unrelated to both of our evidence attitude measures. See [Table 1](#) for details.

In general, the model depicted in [Figure 1](#) demonstrates that both frequency of watching crime television and perceived realism of the shows' content have a number of direct and indirect effects on trial decision making. Perceived realism of crime TV was associated with more positive attitudes toward DNA evidence and eyewitness memory, as well as with the weight given to DNA evidence in the trial itself. Frequency of crime TV consumption had a direct effect on verdict, such that those who watched more crime TV were more certain of the defendant's guilt. Frequency was also related to perceived influence of the eyewitness testimony, which was evidence for the defence in this case. Given the strong observed relationships between attitudes toward evidence, perceptions of witnesses, weight given to the evidence in the trial, and continuous verdict, it is clear that both frequency of watching crime television and the perceived realism of these shows influenced mock juror decision making in this study.

## Discussion

This study represents a departure from earlier work investigating the CSI effect, in that we examined perceived realism in conjunction with frequency of viewing, and our findings also deviate from prior results. Although our comparisons of low versus high frequency viewers of crime television did not yield any direct effects on verdict (similar to most prior research; see e.g., [Holmgren and Fordham 2011](#); [Shelton et al. 2006](#)), our path analyses revealed a number of interesting direct and indirect effects of both the frequency of watching crime television and perceptions of its realism on mock juror decision-making processes and guilt certainty. As hypothesized, those who perceived crime television as more realistic had more positive attitudes toward DNA evidence and were more influenced by its presentation in the trial. However, contrary to hypotheses, continuous frequency of watching crime television was also directly related to guilt certainty in this case involving DNA evidence presented by the prosecution. Interestingly, those who watched more crime television were actually less certain of the defendant's guilt. This may reflect a higher level of scepticism toward the evidence, as suggested by [Schweitzer and Saks \(2007\)](#).

We did not find a direct relationship between continuous perceived realism of crime television and guilt certainty, but we did observe a

number of indirect effects via attitudes toward DNA evidence and eyewitness memory and perceived influence of the DNA evidence. This suggests that perceived realism is an important factor when considering the effects of crime television on jurors' expectations and decisions, reflecting earlier work on the impact of perceived realism on attitudes and expectations (e.g., [Busselle 2001](#); [Taylor 2005](#)). Indeed, it is logical to suppose that the effect of fictional television shows on attitudes will vary as a function of whether the viewer believes that the shows provide a realistic portrayal. A potential juror who watches a great deal of crime television and believes it to be a realistic depiction of the criminal justice system may have a completely different set of attitudes toward forensic scientific evidence than one who watches no crime television or watches strictly for entertainment purposes, with an awareness that these shows are not realistic. The results of this study support this notion, suggesting that frequency of consumption and perceived realism should be considered together when evaluating the potential of a CSI effect on jurors.

The findings with regard to frequency and perceived realism also may accord with earlier results reported by [Schweitzer and Saks \(2007\)](#). In their study, participants who watched forensic science television rated themselves as having a greater understanding of forensic science, resulting in a more critical evaluation of the forensic science (i.e., hair analysis) presented in that study's mock trial. This suggests that those mock jurors substituted their own knowledge of forensic science, obtained from watching crime television, for the evidence that was presented to them in the mock trial. Our findings could be viewed as a parallel – in our study, mock jurors' attitudes toward various types of evidence and the degree to which forensic evidence influenced their decision were related to the degree to which they perceived crime television programs as realistic. However, unlike the hair analysis in [Schweitzer and Saks's \(2007\)](#) mock trial, our mock trial's forensic evidence consisted of DNA evidence, a type of forensic evidence that meets jurors' high standards ([Lieberman et al. 2008](#)). Consequently, perceived realism of crime television was *positively* related to the influence of forensic evidence. [Schweitzer and Saks's \(2007\)](#) sample used their understanding of forensic science (gleaned from watching crime television) to devalue hair analysis; our sample used their perceptions of the realism of crime television to attach value to DNA evidence. Future research could further explore the combined influence of perceived realism and frequency of watching on verdicts in trials involving

different types of forensic evidence in order to determine whether scepticism or valuation of evidence is related to these factors.

### **Limitations**

One potential limitation of the present study was the use of a trial transcript in lieu of a more ecologically valid mode of presentation. Though the use of transcripts does not necessarily represent the real world trial process, a review of jury research (Bornstein 1999) that has investigated the differences between different modalities of presentation has discovered little difference between research using trial transcripts and studies using other modes of presentation (e.g., audiotaped trials, video, live presentation). In addition, a study testing the effects of modality of presentation in trials involving expert testimony found no interaction between the expert testimony conditions and modality (Pezdek, Avila-Mora, and Sperry 2010), suggesting that our use of a transcript does not justify dismissing our findings.

Further, some may criticize the use of a student sample, arguing that it is not representative of the population at large (e.g., Sears 1986). However, the review of jury research just discussed (Bornstein 1999) also demonstrated that, within the domain of jury decision making, there are few differences between student samples and community samples. Other jury research comparing student and community samples with regards to levels of understanding has similarly demonstrated a lack of discrepancy (e.g., Rose and Ogloff 2001).

Finally, this study employed a jury-eligible sample and a trial simulation, whereas a more realistic test of the effects of perceived realism and frequency of watching crime television may be elicited by interviewing jurors after trials in which forensic evidence was presented and asking them about their television viewing habits. However, section 649 of the Canadian Criminal Code precludes jurors from speaking about court proceedings post-trial. Given these restrictions, it can be argued that using jury-eligible participants, as the present simulation did, is the best way of conducting this type of research. In addition, jurors may not be aware of the effects that their attitudes may have on their verdict decisions (e.g., Schuller, Kazoleas, and Kawakami 2009), and so this quasi-experimental examination of the relationship between perceived realism, frequency of watching, and verdict decisions may be superior to reliance on jurors' self-awareness of the effects of *CSI*-type programs on their decision making.

### **Future directions**

This study was the first attempt to investigate the effects of the perceived realism of crime television on perceptions of evidence in a criminal trial (i.e., a new way of looking at a potential CSI effect). We demonstrated that attitudes, expectations, and decision making were influenced by frequency of exposure and perceived realism of crime television in a case where the prosecution presented DNA evidence. The next step is to look at other aspects of the CSI effect, including whether perceived realism will be associated with a lower likelihood of conviction in cases in which no forensic evidence is presented. We have already begun working on this in our lab.

In sum, while comparing low versus high frequency viewing and perceived realism yielded no effects of crime television on verdict decisions, the present study did find a number of interesting effects of crime television (including both frequency of viewing and perceptions of its realism) on decision making in a criminal trial involving forensic scientific evidence. Future investigations of the CSI effect should continue to consider perceived realism as well as frequency of consumption in this context.

### **Notes**

- 1 Analyses using quartile splits (highest quartile compared to lowest quartile) revealed equivalent results.
- 2 Analyses of dichotomous verdict decision (guilty, not guilty) using logistic regression revealed similar findings (effects of both frequency and perceived realism were non-significant).

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## Appendix A: Juror Questionnaire

**INSTRUCTIONS:** Please respond to the following items with regards to the 2<sup>nd</sup> degree murder charge against the defendant.

1. How do you find the defendant, Steven Murphy?

GUILTY --

NOT GUILTY --

2. How confident do you feel in your verdict?

0	1	2	3	4	5	6	7	8	9	10	
not at all confident				somewhat confident				very confident			

**The next set of questions will address specific evidence presented at the trial.**

3. Consider the following questions regarding the Eyewitness Testimony provided by John Ryan in regards to his account of the events that unfolded in the park:

a. How compelling was this evidence?

1	2	3	4	5	6	7	8	9
Not at all compelling				Somewhat compelling				Very compelling

b. To what extent did this evidence influence your verdict?

1	2	3	4	5	6	7	8	9
Not at all				Somewhat				Very much

c. How credible was this evidence?

1	2	3	4	5	6	7	8	9
Not at all				Somewhat				Very much

4. Consider the following questions with regards to the DNA evidence provided by the expert witness with regards to the blood samples taken from the crime scene:

a. How compelling was this evidence?

1	2	3	4	5	6	7	8	9
Not at all compelling				Somewhat compelling				Very compelling

b. To what extent did this evidence influence your verdict?

1	2	3	4	5	6	7	8	9
Not at all				Somewhat				Very much

c. How credible was this evidence?

1	2	3	4	5	6	7	8	9
Not at all				Somewhat				Very much

**The next set of questions will address specific people who testified at the trial.**

5. To what extent did the eyewitness, John Ryan:

	Not at All			Some-what			Very Much		
Provide honest testimony	1	2	3	4	5	6	7	8	9
Provide a fair/unbiased testimony	1	2	3	4	5	6	7	8	9
Deliberately omit facts	1	2	3	4	5	6	7	8	9
Exaggerate or sugarcoat the truth	1	2	3	4	5	6	7	8	9

6. To what extent did the Expert Witness, Frank Miller:

	Not at All			Some-what			Very Much		
Provide honest testimony	1	2	3	4	5	6	7	8	9
Provide a fair/unbiased picture of Benjamin Smith	1	2	3	4	5	6	7	8	9
Deliberately omit facts	1	2	3	4	5	6	7	8	9
Exaggerate or sugarcoat the truth	1	2	3	4	5	6	7	8	9

7. Using the following scale, please indicate the extent to which the defendant, Steven Murphy, is:

	Not at All			Somewhat			Very Much		
Likeable	1	2	3	4	5	6	7	8	9
Aggressive	1	2	3	4	5	6	7	8	9
Kind	1	2	3	4	5	6	7	8	9
Intelligent	1	2	3	4	5	6	7	8	9
Dishonest	1	2	3	4	5	6	7	8	9
Reliable	1	2	3	4	5	6	7	8	9
Antagonistic	1	2	3	4	5	6	7	8	9
Caring	1	2	3	4	5	6	7	8	9
Unfriendly	1	2	3	4	5	6	7	8	9
Hardworking	1	2	3	4	5	6	7	8	9
Trustworthy	1	2	3	4	5	6	7	8	9
Responsible	1	2	3	4	5	6	7	8	9
Cruel	1	2	3	4	5	6	7	8	9

### TV Attitudes Questionnaire

We would like to ask you a series of questions about your television viewing habits. Please answer the following questions honestly.

8. How often do you watch *CSI: Las Vegas*?

- a. I watch the show every week that it airs
- b. I watch the show as often as I can, but not quite every week
- c. I watch the show occasionally, when I get the chance
- d. I rarely watch the show
- e. I have never seen this show

If you answered e, please skip to question 2.

a. How realistic are the events portrayed on this show?

1	2	3	4	5	6	7	8	9	10
Not at all realistic								Very realistic	

How informative is this show?

---

1	2	3	4	5	6	7	8	9	10
Not at all realistic								Very realistic	

---

How accurate is this show's depiction of forensic investigation?

---

1	2	3	4	5	6	7	8	9	10
Not at all realistic								Very realistic	

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