Examining the “CSI Effect”:

The Impact of Crime Drama Viewership on Perceptions of Forensics and Science

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Chapter I

Introduction

Throughout television history, there have been many programs that have focused on crime and law enforcement. These crime dramas, or programs that focus on criminal investigations, are often very popular with audiences. The first crime drama to become popular with viewers was Dragnet. First airing in 1952, Dragnet was rated in the top 10 television programs for four years (Schaeffer, 2010). Other shows have garnered similar popularity. Hill Street Blues and Law & Order appear in TV Guide’s “50 Best Shows of All Time” (Associated Press, 2002).

Currently, the crime drama has risen to new heights of popularity. According to Nielsen Media Research (2008a), crime dramas The Mentalist, Crime Scene Investigation (CSI), and Naval Criminal Investigative Service (NCIS) ranked in the top ten U.S. television shows during 2008 (ranks 5, 7, and 8, respectively). Additionally, for the week of December 8th, 2008, crime programming dominated broadcast television viewership with 7 of the 10 most viewed programs focusing on criminal investigation (CSI, Criminal Minds, The Mentalist, CSI: Miami, CSI: NY, Eleventh Hour, and NCIS) (Nielson Media Research, 2008b). Nearly a year later, in the week of October 12-18th, 2009, crime dramas still hold a dominant place in the television lineup. Nielsen ratings for this week showed that NCIS was the most watched show, with 21 million viewers (The Associated Press, 2009). Of the top 20 most viewed primetime shows during this time period, seven were crime dramas that accounted for roughly 100 million viewers in the United States. It is clear from these statistics that crime dramas continue to hold the interest of American viewers.
While the subject matter of crime drama programs continues to focus on criminal investigation, the ways in which crimes are investigated has changed over the years. With the inception of *CSI*, a new criminal investigator has entered the picture: the forensic scientist. Forensic scientists are responsible for the analysis of forensic evidence, and in some shows, even the collection of scientific evidence. Forensic evidence, as described by the American Academy for Forensic Science (2010), is considered to be hard, scientific evidence that is left from a crime scene. Examples of types of forensic evidence include hair, semen, blood, finger or foot prints, scratches, marks, or other material left from the crime, ballistics/weapons, toxicology, teeth/dental, bones, and handwriting. The collection, analysis, and use of forensic evidence to solve crimes are major themes in today’s crime drama. In these programs, science is the hero, allowing the innocent to go free and the guilty to be punished.

Programs like *CSI* place science at the forefront, often depicting forensic evidence as abundantly available and the only means of finding the “truth” (Nolan, 2006). Why is this problematic? Viewers may be cultivating perceptions of criminal investigations that are unrealistic, and in some instances, completely false. Technologies and processes detailed on these shows at times parallels science fiction more that actual science (Cooley, 2006; Stephens, 2006). The human element of criminal investigation in these shows is often diminished in favor of the scientific truth. Science is the method of catching and convicting criminals, and forensic investigators are the heroes capable of discovering this truth.

Using Cultivation Theory (Gerbner, 1972; Gerbner & Gross, 1976) as a theoretical foundation, this research seeks to clarify the relationships between crime
drama viewership and perceptions of forensics and science. The following discussion will first focus on the current problems surrounding *CSI* and crime drama research. Next, an argument will be made for applying cultivation theory to the crime drama phenomenon.

**Statement of Problem**

In recent years, crime dramas, *CSI: Crime Scene Investigation* in particular, have drawn alarm from the law community as well as within the popular press with suspicions that such shows may impact jurors’ decision making ability (Halpin, 2008; Podlas, 2006; Tyler, 2006; Willing, 2004). The following discussion was printed in *The Washington Post* from a juror’s experiences on a firearm and drug possession case:

“I don’t understand why we don’t have more evidence,” complained one of my fellow jurors. “Why didn’t they try to get fingerprints from the car? And off the keys?” “Right,” chimed in several other voices. “That would make so much difference.” (Smardz, 2005, p. B01).

Smardz asserts that fingerprints were not really relevant to this case; however, jurors were adamant about the prosecution failing to present this type of forensic evidence. This exchange and others like it are believed to be plaguing jury rooms across the country.

The term “*CSI* effect” has been generally applied to many areas of the legal system. However, a more specific definition was outlined by Podlas (2006). Podlas defined the “*CSI* effect” on the legal system in three ways. First, Podlas states that *CSI* affects lawyers’ ability to convict because the show may create unreasonable expectations of the existence of forensic evidence. Because programs like *CSI* portray crime scenes as being rife with scientific evidence, cases where ample forensic evidence are not presented may trigger jurors to conclude there is “reasonable doubt” (Marquis &
Walter, 2007; Mopas, 2007; Smardz, 2005). The second CSI effect involves viewer beliefs regarding forensic science. In this sense, legal researchers assert that CSI viewers are more likely to infer that forensic evidence leads to “a singular, objective correct answer” (Podlas, 2006, p. 438). This aspect of the CSI effect emphasizes the belief that forensic science is infallible and irrefutable. The last CSI effect, as defined by Podlas, is the increased public interest in forensics and science. In this sense, the CSI effect might be a positive one. The implication here is that crime dramas may increase enrollment in college forensic- and science-based programs, or increase viewer interest in science related topics.

While these assertions have been made in other literature reviewing the CSI effect (Mopas, 2007; Nolan, 2006; Stephens, 2006; Tyler, 2006), very little empirical research has been conducted to directly test the extent to which viewing crime dramas are related to these proposed assertions. Much of the evidence of the CSI effect has been anecdotal. However, there is an existing body of research that has been emerging from the legal field.

Legal researchers assert that shows like CSI are raising unreasonable expectations for law enforcement and the judicial system as a whole (Cooley, 2007; Nolan, 2006; Podlas, 2006; Robbers, 2008). Hughes and Magers (2007) surveyed 58 Circuit Court judges in Kentucky in order to determine their perceptions of the impact of CSI on courtroom proceedings. Researchers found that nearly 60 percent of judges surveyed agreed with the statement “Shows like CSI have had an impact upon the administration of justice in my court” (p. 265). Additionally, the researchers found that over three-fourths of those surveyed indicated that CSI has had a negative impact on the administration of
justice, and that they had observed “an increase in the jury’s expectations for forensic evidence since shows like CSI have become popular” (Hughes & Magers, 2007, p. 267).

Not only are judges finding a possible CSI effect, lawyers are indicating a change in the judicial system as well. Stevens (2008) surveyed 444 state prosecutors from 18 states in the U.S. Results showed that about half of the sample believed that juries and judges were always influenced by the presentation of forensic evidence, regardless of the quality of that evidence.

Research has shown that jurors are now routinely being asked about their television viewing habits during jury selection in order to “weed out” people who believe crime dramas are based on fact (Marquis & Walter, 2007). Robbers’ (2008) research supports this assertion, finding that almost one-third of the sample of judges, prosecutors, and defense attorneys indicated that they discussed forensic crime programs during trials to explain the differences between the shows and reality (Robbers, 2008). Of the 290 responses in the study, approximately 80% recalled a specific instance of how forensic crime dramas had impacted jury decision making. One prosecutor explained:

“I routinely ask jurors about the CSI effect and whether they assign greater weight to technical or forensic evidence than testimonial evidence…Jurors expect perfection and are easily misled by [defense] attacks on police investigation because they see how easy it is on CSI” (p. 95).

The overall sentiment across the sample (almost 70%) was that shows like CSI lead to “unrealistic expectations of forensic evidence and police work” (p. 96). While this study deals with beliefs, there is some research that indicated expectations of scientific evidence can have a direct impact on the judicial system.
In a study of homicide trials in Australia, Briody (2004) analyzed 150 actual cases to determine the impact of DNA evidence on the court process. Briody found that cases without DNA evidence were about 14 times less likely to reach trial than those cases where DNA evidence was available. Additionally, the research showed that when DNA and fingerprint evidence was presented, jurors were more likely to convict the defendant than if those types of evidence were absent (Briody, 2004).

Research from the legal field has also presented results linking television viewing to juror decision making. In the first empirical test of the CSI effect, Shelton et al. (2006) examined juror CSI viewership, expectations of evidence, and likelihood of finding a person guilty or innocent based on evidence presented in a case. Participants in the study were presented with several crime scenarios and were asked to indicate what types of evidence they would expect to be presented with during the trial. Results of this research showed nearly half of the sample expected DNA, fingerprint, and ballistics evidence in every criminal case (Shelton et al., 2006). Expectations for DNA evidence were higher in murder and rape cases. When examining the impact of CSI viewership on viewer expectations, Shelton et al. found that frequent CSI viewers had higher expectations regarding scientific evidence than non-CSI viewers.

In another study examining media use and perceptions of DNA evidence, Brewer and Ley (2010) conducted a telephone survey of adults in the Milwaukee area. Researchers asked participants about their knowledge of DNA evidence, including how reliable they believe it to be, as well as their overall and genre specific television viewing habits. The results showed that people who watched crime television reported that they understood DNA evidence more, and that they believed this type of evidence to be
reliable. This research points to a learning effect that may result from watching shows like *CSI*.

While the impact of *CSI* on juror expectations tends to be a legal question, the possibility of a television program’s influence on people’s attitudes, beliefs, and behaviors is also a media effects question. To that end, no media theories have been directly tested in relation to crime viewership and beliefs regarding forensic science. Testing the *CSI* effect under the cultivation theory could help explicate more clearly the relationship between crime drama viewership and beliefs about forensics and science.

**Rationale for Study**

According to Cultivation Theory, television programming is reflective of a culture’s social reality (Gerbner, Gross, Morgan, & Signorielli, 1980; 1986). One of the original and still primary veins of cultivation research has focused on television’s impact on viewers’ perceptions of crime (e.g., Doob & Macdonald, 1979; Gerbner & Gross, 1976; Hetsroni & Tukachinsky, 2006; Romer, Jamieson, & Aday, 2003; Shrum & Bischak, 2001; Valkenburg & Patiwaël, 1998; Van den Bulek, 2004). Often viewed as a component of the “mean world syndrome,” researchers examined the link between heavy viewing of television and “mean world” variables such as viewers’ estimations of crime prevalence, fear of being the victim of a crime, and interpersonal distrust in others.

While this research is extensive, there has been little scholarly examination with regards to other aspects of crime such as perceptions of criminal investigations and evidence. If the television world sends messages about the occurrence and victimization of crimes, messages regarding the investigation of crimes may also be affecting people’s
views. This research will expand the literature on crime perceptions to include viewers’ attitudes toward forensic evidence and science.

While cultivation theory has been fruitful in generating a significant amount of research (Shanahan & Morgan, 1999), there have been criticisms of the theory. One of the major criticisms of the theory surrounds the measurement of television viewing. According to Gerbner et al. (1980), people who spend the most time in the television world will be more likely to subscribe to television’s depiction of social reality. The assumption here is that all television, regardless of genre or channel, conveys the same message. Therefore, measures of total television viewing are often used to examine cultivation effects (Rubin, Perse, & Taylor, 1988; Shanahan & Morgan, 1999). However, many researchers argue that total viewing is an ineffective means of analyzing television use. According to Potter (1993), genre viewership is more likely to yield stronger cultivation relationships than overall viewing. Research conducted by Hawkins and Pingree (1981) revealed differences in genre viewing when analyzing violence perceptions and the mean world index. The researchers argue that genres differ in their depiction of social reality, and therefore measuring total viewing may mask cultivation effects.

With respect to perceptions regarding forensics, the literature has been primarily concerned with CSI viewing (Nolan, 2006; Podlas, 2006; Tyler, 2006). However, other shows that emphasize forensic evidence and forensic science may also be relevant to possible CSI effects. Shelton et al. (2006) assert in their study on the CSI effect that today’s popular crime and courtroom programs as a whole tend to focus on the use of
science and technology to solve crimes. The researchers credit CSI with the emergence of other forensic-based shows like Cold Case, Numb3rs, and Bones.

Even shows that may not be completely focused on forensic evidence often include a forensic component. For example, NCIS, another popular crime program, includes forensic specialist Abby Sciuto as a main character. According to CBS.com’s page on NCIS (2010), Sciuto is “a talented scientist whose dark wit matches her Goth style and eclectic tastes.” Another popular crime drama, Law and Order: Special Victims Unit, also includes forensic experts as main characters. NBC.com’s program website on Law and Order: SVU (n.d.) describes two main characters on the show: “Forensic psychiatrist, George Huang, whose insight into the minds of the accused often provides significant clues that lead to the resolution of a case, and Medical Examiner Melinda Warner, lends her skills to uncover forensic evidence.” While the main focus of shows like NCIS and Law and Order: SVU might not solely focus on forensic science, they clearly include a forensic science component.

While it is important to test possible program specific effects, crime drama viewership as a whole may yield more interesting and fruitful theoretical implications. While exposure to one program may be related to unrealistic perceptions regarding evidence and science, watching multiple programs with the same themes should strengthen that relationship. Shelton et al. (2006) found that frequent viewers of CSI also frequently watched other law or crime related programming. The researchers also found that people who did not watch CSI tended to avoid other crime-based programming. If researchers only focus on CSI with respect to the perceptions of forensics and science, possible relationships may be masked. Therefore, this research will analyze two levels of
viewing: program genre use (crime drama viewership) and overall television viewing (average time spent with television) in order to determine which level of viewing yields the strongest cultivation effect.

In summary, the purpose of this study is to empirically test the assumptions surrounding the CSI effect. Specifically, the relationship between television viewing and likelihood estimates of forensic evidence at crime scenes, the belief that forensic evidence is infallible, as well as viewers’ attitudes toward science, scientists, and forensic investigators will be examined. This study will also expand upon previous cultivation theory critiques regarding measurement of exposure to account for two levels of television viewership: genre-specific and overall viewing. To this end, literature regarding the cultivation theory will be reviewed, as will existing literature regarding crime drama research and the CSI effect.
Chapter II

Literature Review

Theoretical Perspective: Cultivation Theory

Cultivation theory has been generally applied to previous studies of the CSI effect (Podlas, 2006), yet the impact of exposure on perceptions regarding forensic evidence has not been directly tested. It is appropriate to apply this theory to answer the question of how television content might impact beliefs and attitudes relevant to the themes projected on crime dramas. While this theory has been highly criticized throughout the years, it has also yielded vast amounts of research regarding television effects (Shanahan & Morgan, 1999). The following sections will discuss the primary assumptions of the theory, relevant cultivation findings, and current theoretical criticisms that will be addressed in this study.

Assumptions of the Theory

The primary assumption of cultivation theory is that television is the main symbolic environment within society (Gerbner et al., 1980; 1986). Television is the most prevalent and accessible medium in the United States. The average household in the U.S. has approximately three television sets and 58% of the population can tune in to over 100 channels (Elliot, 2008). The content presented across these many channels, particularly in the case of fictional programming, is derivative and reflective of U.S. culture (Shanahan & Morgan, 1999). Television is integrated into our lives from birth, and the messages we absorb from this medium help us make sense of our world (Gerbner, 1972).

The original theory proposes that television content across the landscape projects a common view of the world, and that viewers passively absorb messages when tuning in.
Shanahan and Morgan (1999) assert that most heavy viewers “watch by the clock,” and are therefore less likely to actively choose content. They simply watch whatever is on, and therefore are more likely to be affected by the general messages television exudes. Gerbner et al. (1980) described this phenomenon as the mainstreaming effect, defined as the “relative commonality of outlooks that television tends to cultivate” (p. 15). Therefore, cultivation theory asserts that time spent in the television world is the primary variable of interest. According to Gerbner et al. (1980), heavier viewers, regardless of individual differences, would be more likely to perceive the world in terms of the mainstream television view of reality.

Researchers of cultivation do acknowledge that individual differences can have an impact on social reality judgments, however. According to Shanahan and Morgan (1999), television viewing is affected by many demographic variables, such as sex, income, race, education, and occupation. Shanahan and Morgan state that light viewers are less vulnerable to the televised version of social reality because they have other sources to pull from in order to form their perceptions. Consequently, demographic differences amongst light viewers can have a larger impact than will demographic differences amongst heavy viewers on variables examined using cultivation theory. For example, a light viewer who is highly educated is likely to understand the scientific method behind forensic investigation, whereas a light viewer with little education is not likely to understand this concept. Therefore, perceptions between these two demographic groups are likely to differ regarding the infallibility of forensic science.

According to Shanahan and Morgan (1999), complex social variables often have many driving causes. The researchers assert that television viewing is a “social
condition” that is not in isolation from other social variables. However, differences can often be found between the television version of reality and the “real world.” It is within this realm that cultivation theory is most relevant.

**Empirical Support for Cultivation Theory**

There are two main methods for examining cultivation relationships: message system analysis and cultivation analysis. Both are integral components in understanding the ways in which the symbolic environment of the television world interacts with the tangible world. The following discussion outlines research from both methods of study that lends support for cultivation theory.

In order to analyze relationships between the television world and the real world, it is useful to first understand what messages television is conveying. Therefore, message system analysis is often the first step in cultivation research. This process involves systematic observation of television messages in the form of content analyses or by utilizing existing content research to determine common themes (Shanahan & Morgan, 1999). Beginning with the Cultural Indicators project (Gerbner & Gross, 1976), researchers have sought to document depictions of social reality on television. The original concern regarding television content primarily surrounded depictions of violence (Shanahan, 2004). The basic assumption was that the television world was a violent, scary place. Research has shown support for this assumption (Appel, 2008; Doob & Macdonald, 1979; Gerbner & Gross, 1976; Gerbner, Gross, Jackson-Beeck, Jeffries-Fox, & Signorielli, 1978; Gerber et al., 1980).

In their foundational study, Gerbner and Gross (1976) found that between 1967 and 1975, eight out of every ten programs contained a violent act. This trend has
continued to be studied. Utilizing data from the National Television Violence Study, Smith, Nathanson, and Wilson (2002) found that 61% of all programs on television included at least some violence. The researchers also concluded that the rate per hour at which violence was portrayed did not significantly differ by the time of day. Violent acts were shown nearly seven times per hour on television. Signorielli (2003) examined television content from 1993 to 2001, and found violent depictions to be relatively stable across this eight-year time period. Within this time period, the average number of programs containing some form of violent content was 60%. These results compliment those by Smith et al., and show that violence has a consistent presence in the television world. Thus, the cultural message being depicted on television is that the world is a violent place. These depictions may have consequences for viewers, which are related to the next component of cultivation theory.

Once message system analyses are conducted and reveal the cultural themes projected through television, the next step is to determine how viewers are impacted by these common themes (Gerbner, 1972). This is known as cultivation analysis. Cultivation analysis is primarily concerned with discovering mainstreaming effects, or the impact of heavy viewership on social reality judgments.

Mainstreaming effects are measured in two ways: first order effects and second order effects. First order effects are examined by comparing television exposure to perceptions of frequency, whereas second order effects compare television viewing with beliefs or “more general views of reality” (Gerbner et al., 1986; Shanahan & Morgan, 1999). For example, a first-order cultivation effect would involve asking participants to estimate the percentage of crimes that involve a murder. A second-order analysis would
ask participants to give their attitudes regarding the likelihood that a person accused of murder would be convicted.

Therefore, evidence for the occurrence of mainstreaming exists when heavy viewers give the “television” answer when prompted to make either first order or second order judgments. The television answer is determined through content analysis or previous research to differ from that of reality. A hypothetical example might be that everyone who is accused of murder on television is convicted. In reality, not everyone who is accused of murder is convicted. Heavy viewers who believe that everyone who is accused of murder should be convicted would be exhibiting a second-order mainstreaming effect.

For example, Hetsroni (2010) examined first and second order effects related to people’s perceptions of Iceland’s economy. First order questions were concerned with estimates of the average salary of an Icelandic worker and whether the economy was in a positive or negative condition (Hetsroni, 2010). Using statistics and content analysis data, Hetsroni was able to determine the real and mainstream television answer to these questions. Second order effects examined in this study were proposed regarding attitudes toward Iceland and its economy. Participants were asked if they would move to Iceland, and if they did, would they have a better or worse standard of living. Again, by using content analysis, the mainstream answers were derived and then compared to participants’ responses. Other researchers have utilized these two types of mainstreaming effects when applying cultivation theory (Potter, 1991a; Rossler & Brosius, 2001; Shrum, Lee, Burroughs, & Rindfleisch, 2011).
As with message system analysis research, the predominant questions regarding mainstreaming effects have focused on crime and violence perceptions (Gerbner & Gross, 1976; Gerbner et al., 1978, 1980; Grabe & Drew, 2007; Nabi & Sullivan, 2001; Romer et al., 2003; Valkenburg & Patiwaal, 1998). Gerbner and colleagues’ violence profiles were designed to document the level of violent portrayals on television and link the depictions to the “mean world syndrome.” Gerbner consistently found that heavy viewers of television were more likely to distrust others and overestimate the likelihood of being the victim of violence (Gerbner & Gross, 1976; Gerbner et al., 1978; 1980).

In addition to perceptions of violence, cultivation researchers have examined the impact of viewership on perceptions of crime. Nabi and Sullivan (2001) found that television viewing was positively related to participants’ estimations of the prevalence of crime in society. Interestingly, they also found that heavier viewers of television were more likely to report that they intended to take action to prevent crime (e.g., lock their door, carry self-protective devices, etc). Similarly, Grabe and Drew (2007) found that heavy viewers of reality television were more likely to own a gun. In this sense, television was not only related to perceptions, but also to behavioral effects.

Additionally, Romer et al. (2003) analyzed national, regional, and local data to explore the relationship between news viewing and perceptions of societal and personal risks of harm to themselves and their family (crime, health, etc.). Results showed that local news viewership was positively related to participants’ perceptions of risk with being the victim of a crime, more so than all other personal or societal risks in the study (e.g., natural disasters, drugs, handguns, motor vehicles). Similarly, Valkenburg and Patiwaal (1998) found that frequency of viewing Court TV impacted negative
perceptions of crime. Specifically, the more people watched Court TV, the more they felt that crime was a problem and was threatening to themselves and society. These results support the notion that crime is a prevalent mainstream theme, and that viewers’ perceptions are related to that view.

Beyond perceptions of crime, viewers also may be cultivated regarding their views of the criminal justice system. Grabe and Drew (2007) examined the impact of television viewing on a number of crime perceptions. They found that as crime drama viewing increased, participants decreased in their reported support for politicians who were tough on crime. For exposure to network news, however, this relationship was reversed. Heavy news viewers tended to report higher support for politicians who were tough on crime. Additionally, the study revealed that network news viewership was positively related to beliefs in the effectiveness of the criminal justice system and estimates of crimes committed by non-white perpetrators.

Given these results regarding crime, violence, and the criminal justice system, it is clear that cultivation theory may shed some much needed light on how viewers make judgments of criminal investigations. In particular, the emphasis and importance placed on forensic evidence and science with respect to criminal investigation is a relatively unexplored area of research. Yet, there seems to be an ever-growing discrepancy between television depictions of criminal investigations and the real world. Cultivation theory can help explicate the relationship between the television world and the real world; however, there are criticisms of the theory. The following sections detail common criticisms: conceptualization of exposure, measurement of exposure, and the use of demographic variables.
**Conceptualizing Exposure: Genre Viewing**

One of the greatest criticisms of cultivation theory surrounds the conceptualization and measurement of mainstreaming effects (Potter, 1993; 1994; Rubin et al., 1988). The original conception of cultivation theory proposed that television viewing should be examined holistically, in terms of total hours spent watching across all channels. At the time Gerbner was constructing this theory, there were three television broadcast networks. In today’s high definition cable television environment, channel options are plentiful. In 2006, the National Cable & Telecommunications Association reported 565 national cable programming networks (NCTA.com, 2010). This multi-channel environment has brought into question the concept of the “mass audience.” Audience fragmentation has implications for cultivation research.

Webster (2005) argues that there “no longer is a central forum where all citizens, metaphorically, gather. This might diminish the power of television to create a shared symbolic environment” (p. 368-369). Results from Webster’s (2005) analysis of Nielsen data of 65 major broadcast and cable networks revealed that the big three networks (CBS, NBC, ABC) still enjoyed large audiences. However, the amount of time spent with broadcast networks was vastly distributed across other channels. Thus, even though many people do tune into the broadcast networks, they are also dividing their time amongst a plethora of other channels and content. These channels often cater to specific audiences with specific interests (Webster, 2005). In this sense, Gerbner’s concept of the mainstream comes into question. Specifically, the conceptualization that television exposure be measured in terms of total television viewing may no longer be relevant in today’s television environment.
The use of genre as a conceptualization of television exposure is not a new concept. Researchers have applied this measure to their research and have found genre to be a useful measure of television exposure with respect to cultivation theory. Hawkins and Pingree (1981) examined the impact of genre use on perceptions of violence and the mean world index. The researchers found that cultivation effects differed between genres. Specifically, viewing of crime adventures, game shows, cartoons, and situation comedies were positively related to perceptions of violence in society. Other genres such as dramas and news viewing were not related to violence perceptions. Additionally, the crime adventure genre was the only significant relationship to emerge with regard to the mean world index. Crime genre viewership was positively related to estimates of violence in society and distrust in people. Overall television viewing in this study did not yield significant relationships between either measure (Hawkins & Pingree, 1981).

Additional research has also yielded genre differences when researching attitudes and beliefs. Appel (2008) found that frequency of fictional television viewing predicted participants’ general belief in a just world. Fictional programming in this study included feature films, crime dramas, soap operas, and other television series. Nonfiction programs included news programs, talk shows, and documentaries. Showing support for genre measures, Appel also found that overall viewing (measured as average weekly television use) did not predict just world beliefs. However, Appel did find that overall television viewing was positively related to mean world beliefs (operationalized as interpersonal distrust and fear related behavior). This study shows that there may be some attitudes and beliefs that are generally conveyed through television (i.e., the world is a mean, scary
place). While lending support to Gerbner’s research, the study also shows that overall viewing does not always yield significant results for other attitudes.

In a study by Potter and Chang (1990), research showed that overall television viewing measurement was the weakest predictor of cultivation effects. Potter and Chang measured four levels of television exposure: total weekly television viewing, weekly hours of genre viewing, proportion of genre viewing (operationalized as the percent of weekly genre viewership in relation to total weekly viewing), and total proportional genre viewing (weighting the total viewing hours). The study measured several cultivation measures, including estimates of crime, victimization, divorce, and the percentage of working females. Results showed that overall television produced the least amount of significant correlations than each of the other three measures. Genre viewing, specifically the proportional measure, was the best predictor of cultivation effects (Potter & Chang, 1990).

When analyzing the effects of media use on perceptions of science and technology, Nisbet, Scheufele, Shanahan, Moy, Brossard, and Lewenstein (2002) found differences between genre viewing and overall television viewing. For example, frequent viewers of television were more likely to have doubts regarding the role of science in society, whereas viewers of science television were less likely to hold these reservations. Additionally, Elliot and Rosenberg (1987) found that consumption of specialized science content in the media was related to participants’ science competence. Science competence in this study was defined as “respondents’ feelings about their ability to handle general scientific and technological issues” (p.173). The researchers concluded that exposure to scientific media (i.e., science magazines, science programs like Nova)
was just as important as demographic variables such as education, sex, and political position to the formation of perceptions regarding science competence.

Based upon existing research that shows genre can be a better predictor of cultivation effects, and the growing perception that a “mass” audience is becoming a trend from the past (Webster, 2005), it may be time to revise the exposure concept of cultivation theory. People who are heavy viewers of a specific genre of television are more exposed to the messages portrayed on those shows, and genres do differ in the messages they deliver. A person is heavily exposed to crime dramas would be constantly exposed to crime scenes, criminal investigations, and in some cases criminal trials. Someone who is a dedicated sitcom viewer would be less exposed to those themes, and would therefore not be expected to cultivate the same perceptions of those events that a heavy crime drama viewer would.

**Measuring Exposure: The Use of Continuous Measures**

In addition to genre measurement, another concern by researchers has surrounded the use of dichotomous, heavy vs. light viewer categories as a means of detecting cultivation effects (Potter, 1991b; 1994; Van den Bulck, 2003). Potter (1994) asserts that this practice is problematic because there is no set cut-off point between studies. Also, Potter points out that studies vary in how many levels of viewing they use. Some studies use a dichotomous measure (heavy vs. light), whereas others include a median, “moderate” viewing category. Potter argues that these cut off points are often arbitrary, and that segmenting a continuous variable into categories is unnecessary. The conceptualization of mainstreaming does not necessitate that viewer comparisons between heavy and light remain.
Using a continuous measure of time spent viewing not only allows for more powerful statistical testing (Potter, 1994), but it also supports the concept of mainstreaming. It is not necessary to break down a continuous measure into two or three viewer categories in order to compare them. Frequency measures can also be used to show that people who watch more television exhibit attitudes or beliefs that correspond with the television mainstream. Correlation or regression statistics can show a relationship between viewing time and participants’ self reported perceptions related to the mainstream.

Accordingly, this study will measure exposure to television (and crime drama programs) as a continuous variable. Evidence of a positive correlation between exposure and perceptions of such variables as infallibility of and expectations for forensic evidence will be taken as consistent with the notion that relatively heavier viewers are more likely than light viewers to adopt beliefs about forensic evidence consistent with those portrayed on television.

**The Role of Individual Differences in Cultivation Research**

In addition to criticism regarding television exposure measurement, the use of demographics in cultivation research has been highly debated by scholars (Hirsch, 1981a, 1981b; Potter, 1993, 1994; Rubin et al., 1988; Shanahan & Morgan, 1999). Potter (1994) states that when controlling for individual characteristics, the relationship between television viewing and dependent variables tends to diminish. Despite a decrease in relationship, studies have shown that the reduction in coefficients does not always impact the interpretation of significant findings (Appel, 2008; Gerbner et al., 1980; Valkenburg & Patiwaël, 1998).
For example, Appel (2008) designed two studies to test television viewing’s relationship to the belief in a just world. Appel utilized hierarchical regression analysis to control for age, sex, and education. In both study 1 and study 2, demographic controls had no impact on participant’s belief that the world is a just and fair place where good things happen to good people and bad things happen to bad people (Appel, 2008). In a study examining the impact of viewing Court TV on participants’ perceptions of crime, Valkenburg & Patiwael (1998) found a positive relationship between Court TV and crime perceptions. This relationship remained significant after controlling for sex, age, educational level, and place of residence. In Gerbner et al. (1980), researchers were examining television viewing’s impact on the “mean world syndrome.” Gerbner et al. found that there was a positive relationship between television viewing and interpersonal mistrust. The researchers found that the relationship did diminish when controlling for age, sex, newspaper reading, education, income, race, and occupational prestige; however, the relationship was still statistically significant.

Despite some findings that indicate demographic variables do not impact cultivation results, other research has shown that differences do exist. Using stepwise multiple regression, Potter and Chang (1990) examined how control variables impacted first and second order cultivation effects. First order cultivation effects concern participants’ probability estimates of phenomena in the real world. Potter and Chang’s first order measures included probability estimates of crime, victimization, violent death, divorce/affairs, and women working. Second order cultivation effects are attitudinal measures. Second order estimates in this study asked respondents how much they agreed with items measuring crime, divorce, and women working. The demographic controls in
this study were age, sex, race, household income, each parent’s highest educational level, and parents’ occupational status. Potter and Chang found that control variables had a higher predictive power than television viewing measures for both first and second order cultivation estimates.

Hughes (1980) reanalyzed Gerbner et al.’s 1975 and 1977 General Social Survey data to analyze the impact of control variables. Hughes found that some relationships disappeared when controlling for demographics, while some remained stable. For example, the relationship between sex and television viewing disappeared when controlling for hours spent working per week. Race, however, remained stable (African-American people watch more TV than white people). The impact of education on television viewing is reduced when controlling for age; older people watch more television due to economic, social, and employment variables (Hughes, 1980). Regarding cultivation measures, Hughes found that when controlling for demographics, television’s impact on fear of walking alone at night was nonsignificant. Age, sex, and size of the neighborhood were all stronger predictors of fear than television viewing.

While finding partial support for Gerbner’s assumption that television viewing impacts fear of crime, Doob and MacDonald (1979) also found control variables to be important in that relationship. Controls examined in this study sex, age, newspaper reading, radio news, and actual crime rates. Using stepwise multiple regression, Doob and MacDonald found that amount of television viewed did not relate to fear of being the victim of a crime when controlling for demographics.

It is still unclear in the literature regarding the role of individual differences in cultivation research. However, because these variables may impact cultivation results, it
is important to examine how demographics might impact participants’ judgments of forensic evidence and science. Therefore, the current study will analyze the effect of demographic variables on cultivation results.

**Applying Cultivation Theory to the Current Study**

The current study will seek to expand the literature regarding cultivation theory by examining the relatively unexplored area of criminal investigation perceptions and the *CSI* effect. This research will focus on second order mainstreaming effects by comparing crime drama viewership to beliefs related to forensics and science. While overall exposure has been traditionally used as a basis for cultivation measurement, this research will seek to determine whether genre viewership will be a better predictor than overall television exposure. Additionally, exposure will be measured and analyzed as a continuous measure rather than as a categorical variable. Lastly, demographic variables will be included in order to determine the impact of individual differences on the cultivation relationship.

According to the theory, the first step in cultivation analysis is to determine the existing television viewpoint or mainstream message. Optimally, this would be determined by content analysis. However, as noted by Shanahan and Morgan (1999), existing research regarding television content can be used. For the present study, support for the depiction of crime evidence on television (and the discrepancy between the real world and the television world) will be based upon previous content and critical analyses of forensic and scientific TV programming, as reviewed below. Additionally, research regarding the “reality” of criminal investigation is presented. The following section
outlines the two major veins of interest regarding the CSI effect: perceptions of forensic evidence and science.

**Depictions of Science: The “CSI/ Effect”**

The term “CSI effect” has been used in many ways to describe phenomena believed to be associated with crime drama viewership. This study will examine two facets of the CSI effect: perceptions regarding scientific evidence in criminal investigations and viewer attitudes toward science.

**The “Truth” of Science: Criminal Investigations**

One prevalent theme on crime dramas is that science can solve crimes. Shows often depict crime scenes as being filled with scientific “clues” that will lead the super sleuths (i.e., the forensic scientists/detectives) to the perpetrator. Once discovered, these clues often are used as irrefutable evidence of guilt. This theme manifests itself in two ways: the prevalence of evidence shown on these shows and the belief in the infallibility of forensic evidence.

**Prevalence of forensic evidence in crime scenes.** One possible effect of crime drama viewership is that people are more likely to believe that crime scenes are rife with scientific evidence. Because crime scenes are believed to have ample scientific evidence to convict, legal professionals are concerned that failure to find and/or present this type of evidence is detrimental to the legal process (Willing, 2004). In his research regarding the “CSI effect,” Nolan (2006) asserts that jurors may view the existence of forensic evidence as a critical component of criminal investigations and that if none exists, the investigation is irrelevant. However, in reality, forensic evidence may not be available or relevant to a particular case.
When critically analyzing the original program, *CSI: Crime Scene Investigation*, Nolan (2006) found that “a virtual plethora of incriminating and incontrovertible physical evidence always exists and is already at crime scenes” (p. 581). This is problematic because not every criminal case may use forensic evidence as a means to convict a perpetrator. Other types of evidence such as confessions, eye witness accounts or motives may be more relevant than evidence such as fingerprint or DNA. However, this type of evidence is rarely depicted on shows like *CSI* (Gever, 2005).

Some research has emerged examining the specific types of evidence presented on *CSI*. After conducting a content analysis of the first two seasons of *CSI*, Podlas (2006) found that the most prevalent forms of forensic evidence depicted on the show were shoe or fingerprint, blood, fiber or hair, rape kit or semen, gun or ballistics, drugs, and DNA. Of the 46 episodes examined in this study, 39 included at least one of the aforementioned types of forensic evidence (Podlas, 2006). Print analysis, the most frequent type of evidence shown, appeared in approximately one-third of the episodes analyzed.

While *CSI* may emphasize certain types of evidence on the program, real crime labs see a different reality. According to the U.S. Department of Justice (Durose, 2008), nearly 300 public crime labs surveyed across the country received 2.7 million requests for forensic evidence analysis. Among these requests, controlled substance identification (i.e., drugs) was the most analyzed type of evidence, followed by toxicology (i.e., poison) and latent print testing. In 2005, approximately half of all requests for evidence analysis consisted of controlled substance identification.

While print tests were frequently depicted on *CSI* (Podlas, 2006) and are often analyzed in real crime labs, other prevalent tests depicted on the show are much less
prevalent in real life. For example, DNA and trace evidence (e.g., gunshot residue, explosives, hair, fiber, fire debris) consisted of 3% and 2% of the total evidence investigated in 2005, respectively (Durose, 2008). Blood analysis, which was the second most prevalent type of analysis on the television show, consisted of approximately 3% of investigated evidence in real life (Durose, 2008). These results show a clear distinction between the television world of criminal investigation and real world findings.

Along with depictions of forensic evidence on CSI, researchers are concerned with expectations generated from watching these shows. Shelton et al. (2006) surveyed jurors in order to determine, among other variables, expectations regarding evidence in trials. Results showed that almost half of the approximately 1,000 jurors surveyed indicated that they expected every criminal case to include some kind of scientific evidence. When specifying the types of evidence that jurors would expect in every case, fingerprint evidence, ballistic or firearms evidence, and DNA were the most frequently named. Other choices included eyewitness testimonies and circumstantial evidence. These results are interesting in light of Podlas’ (2006) content analysis that shows fingerprinting as the most prevalent type of scientific evidence depicted. Additionally, given the small percentage of actual DNA testing performed in real crime labs (Durose, 2005), the perception by jurors to expect DNA to be presented in every criminal case is particularly interesting.

In addition to the types of evidence expected, Shelton et al. (2006) also examined expectations for evidence in particular cases. Researchers gave jurors scenarios and were asked what types of evidence they would expect in the trial. The types of crimes ranged from murder and rape to theft and breaking and entering. Participants were also given the
scenario of “every criminal case.” Results showed nearly three-fourths of the sample expected scientific evidence to be present in rape crimes and almost half for murders (Shelton et al., 2006). Rarely did participants expect DNA to appear with crimes where it typically would not be relevant, such as theft or breaking and entering cases.

Shelton et al.’s results regarding participants’ beliefs regarding the presence of scientific evidence at crime scenes are particularly interesting, given results from studies that have examined the program content of CSI. Violent crimes made up 72% of crimes shown on CSI’s first season, and murders were the most frequent single crime depicted (Cavendar & Deutsch, 2007). Murders and rapes were also found to be prevalent on CSI by Podlas (2006). This link is further supported by Shelton et al. (2006), who found that viewers of CSI were slightly more likely than non-viewers to expect scientific evidence in murders, rapes, breaking and entering crimes, and crimes involving a gun. While intuitively one might expect DNA to be left at a murder scene, it could be possible that expectations are heightened when crime programs frequently show serious crimes in which DNA evidence was gathered.

Another study conducted on the impact of scientific evidence and eyewitness testimony was conducted by Kim et al. (2009). This study specifically examined the impact of CSI viewing on juror verdict decisions. The researchers surveyed actual jurors who had been summoned for jury duty in southeast Michigan. Before being assigned to an actual trial, participants were given the survey that measured how likely they would be to convict a defendant without scientific evidence based on circumstantial or eyewitness testimony. Utilizing path analysis, the researchers found that CSI viewership raised
participants’ expectations that scientific evidence would be presented by prosecutors and lowered the willingness to convict defendants based on circumstantial evidence alone.

Similar results were found by Schweitzer and Saks (2007) in their study of juror expectations with respect to CSI viewing. When presented with a criminal scenario involving a hair left on a ski mask, college students of jury age who had viewed CSI programs were more likely to expect high tech scientific analysis than non-CSI viewers. The researchers concluded that CSI viewers were also more likely to understand forensic science and be more critical of low-technology forensic evidence. Eyewitness testimony was also found to be less convincing when making a verdict decision for CSI viewers (Schweitzer & Saks, 2007).

Based on these studies, it seems that people who view crime dramas have heightened expectations for scientific evidence to be presented at a criminal trial. This research supports a possible CSI effect that people believe that crime scenes always leave useable, concrete forensic evidence that should be presented at a trial. Based on research from actual crime labs and juror expectations, scientific evidence might not always be presented or important in deciding a verdict in a criminal trial. Another possible CSI effect, and perhaps a more disconcerting one, is the potential belief in the infallibility of forensic science by those who view crime dramas.

**The infallibility of forensic science.** One of the major concerns of both scholars of media and the judicial system is that crime dramas may cultivate beliefs that forensic science is an infallible means of discovering the truth. One of the assertions made regarding the potential effects of crime drama viewership is that people will assume that all crimes can be solved through the detection and analysis of forensic evidence (Podlas,
Guilt or innocence of the accused, therefore, is determinant upon the existence of forensic material. Science, in this sense, supersedes the judicial system.

For example, on CSI, psychological evidence is rarely depicted (Gever, 2005). Forms of evidence like motive, alibi, or confessions are often not depicted. According to Gever’s critical analysis of the original CSI program (2005), when confessions are shown, the accused will confess after being presented with forensic “proof” of their guilt. The confession in this sense is secondary, and for all intents and purposes of the show, unnecessary. Therefore, innocence or guilt surrounds hard evidence such as DNA samples or fingerprinting.

In a study examining college students’ perceptions of evidence in making jury decisions, Lieberman, Carrell, Miethe, and Krauss (2008) found that scientific evidence held more weight than eyewitness or victim testimony in deciding guilt or innocence. The researchers conducted three experiments where student and juror samples were given a rape and a murder case scenario. They then asked respondents to indicate whether they believed DNA, hair, fingerprints, victim testimony, and eyewitness testimony impacted their decision of guilt or innocence. Participants were more likely to convict the accused when DNA and blood type evidence were presented than all other types of evidence (Lieberman et al., 2008). Additionally, 90% of the sample indicated DNA evidence was perceived as the most accurate type of evidence in a trial, followed by scientific evidence, and lastly eyewitness testimony.

Based on Lieberman et al.’s (2008) results, one can see that scientific evidence is an important facet of juror decision making, and that participants’ value scientific evidence more so than eyewitness testimony. Lieberman et al. state that common thought
on juror decision making was that eyewitness testimony would be more effective in prosecuting a criminal. However, participants in the study did not highly value eyewitness testimony in making their conviction decision. This finding could be due in part to the fact that scientific evidence is perceived as being infallible, whereas eyewitness testimony is viewed as being more subject to “human error.”

While Lieberman et al.’s (2008) study shows less credibility given to eyewitness testimony, Kim et al. (2009) shows that eyewitness testimony can be more important in juror decision making than scientific evidence. While the study found that crime drama viewers were more likely to expect scientific evidence to be presented in a case, their decision making regarding a guilty verdict was less impacted by television viewing. When presented with eyewitness testimony, the impact of CSI viewership disappeared. Participants were not impacted by a lack of scientific evidence presented if credible eye witness testimony was given by the prosecution. These results showed that when circumstantial evidence is presented without scientific evidence, CSI viewers are less likely to convict a defendant. Therefore, circumstantial evidence is viewed as less credible than scientific evidence. However, if an eye witness is presented without scientific evidence, participants were likely to convict. Thus, eye witness testimony is seen as being as credible as scientific evidence (Kim et al., 2009). These results show that CSI viewing raises expectations for the presentation of scientific evidence, yet are mixed as far as the impact that these expectations have for juror decision making.

Kim et al.’s findings are particularly interesting given that when eye witness testimony is shown on CSI, it is often discredited by the presentation of physical, scientific evidence (Kruse, 2010). Kruse’s critical analysis of CSI revealed that even
when eye witness testimony is used, it is only presented to corroborate physical evidence. As Warrick, a detective on the CSI remarks in an episode, “The laws of physics trump the eyewitness. There’s just one way this could have gone down” (Kruse, 2010, p. 81). Perhaps because eyewitnesses are shown as being less credible on the shows when scientific evidence is presented, the impact of their testimony is less relevant. Further research regarding evidence expectations with regards to crime dramas is needed in order to clarify the relationship between viewing and evidence presentation.

In addition to studies conducted on juror decisions and eyewitness testimony, Brewer and Ley (2010) conducted an empirical study on the impact of media use on public perceptions of DNA evidence. The researchers surveyed 908 adults in the Milwaukee area via telephone random digit dialing. They sought to determine how overall television viewing, crime television viewing, and news consumption impacted participants’ understanding of DNA evidence, its reliability, the utility of DNA on juror decisions in a murder case, and support for a DNA national criminal databank. Results from this study showed that both overall television viewing and genre viewership was related to participants’ beliefs that DNA is a reliable form of evidence.

However, there were differences in findings between overall viewing and genre viewing. People who were heavy viewers of overall television were more likely to respond that they would acquit a defendant if the prosecution did not present DNA evidence. Heavy overall viewers did not indicate they would be more likely to convict a criminal based on if a prosecutor presented DNA evidence linking a defendant to the crime. Heavy viewers also were less likely to believe that they had an understanding of DNA evidence (Brewer & Ley, 2010).
With respect to crime drama viewership, Brewer and Ley (2010) found that participants who were heavy viewers of shows like CSI and Forensic Files had a greater understanding of DNA. Genre viewership did not impact juror decision making regarding the presence or absence of DNA presented by prosecutors. This study shows that television viewing does indeed have an impact on how reliable DNA evidence is perceived by viewers, as well as interesting findings regarding juror decision making with respect to overall viewing. Genre viewing, in this study, suggests a potential for learning about DNA, whereas overall viewing may warrant more juror effects.

When critically analyzing CSI, researchers have found a common theme professed by CSI detectives: evidence doesn’t lie (Gever, 2005; Kruse, 2010; Nolan, 2006). Nolan’s (2006) and Kruse’s (2010) analysis found that characters on the show will directly espouse this theme. Warrick, a detective on the show, remarked in an episode, “People lie. The evidence doesn’t lie” (Nolan, 2006, p. 584). This sentiment is also stated by other characters on the show. Grissom, a primary character on CSI, has also been shown saying, “I tend not to believe people. People lie. But the evidence doesn’t lie” (Kruse, 2010, p. 81). The implication from these statements is that science is infallible; it is the irrefutable means of discovering the truth.

According to Gever (2005) and Kruse (2010), CSI does not attempt to tackle issues of morality or motives for committing crimes. It is primarily focused on the truth surrounding a crime – the facts of the cases as presented through forensic science. These facts are then seen as the “absolute truth” and the only means of delivering justice. However, no scientific method shown on the show is truly infallible. Human error when collecting and analyzing the data is a real concern.
Researchers from the *Innocence Project*, a non-profit legal group through the Cardozo School of Law at Yeshiva University, specialize in using DNA testing to exonerate people who have been wrongly convicted. Of the 258 overturned cases in the U.S., 50% were due to unvalidated forensic science (*Innocence Project*, 2010). Improper forensic evidence, according to the Project, is the second highest cause of wrongful conviction of the cases they have overturned. The group states that evidence such as hair testing, bite mark, and shoe print comparisons have not been proven as effective tests and are not submitted to scientific standards. Yet, these forms of evidence were used in trials and were persuasive to jurors when convicting defendants.

Even techniques that are recognized as scientifically sound, like blood analysis, can still be mishandled in a lab or misinterpreted to a jury. Scheck, Neufeld, and Dwyer (2001) examined 74 cases where innocent people were exonerated after being wrongfully convicted of a crime. The top reason for wrongful conviction was mistaken ID (81%). The second most frequent reason for wrongful conviction was serology errors (blood testing of semen, saliva, and bloodstains). These errors occurred in 51% of the cases. Hair comparisons and fraudulent or defective science were also important factors, with 35% and 34% of cases reporting this error, respectively. Other forensic inclusions and DNA errors accounted for 8% of the sample (Scheck et al., 2001). It is clear from these results that forensic science is not infallible in real life.

When researching the impact of *CSI* on real crime labs, Stephens (2006) states that “legitimacy of evidence always boils down to the manner in which that evidence is handled: it comes down to people. When people do it right…then DNA is legitimate. DNA, as evidence, has no inherent legitimacy that cannot be affected by human error” (p.
This fact is all but ignored on crime drama programs. There is never an instance of mishandled evidence on CSI; however, the possibility for this to happen in an actual criminal case is a reality. For example, very few forensic analysts are actual scientists. Many people who work in forensic labs are specialized technicians with little training in scientific method (Cooley, 2006). Cooley states that even graduates of forensic programs (masters and undergraduate level) are questionable due to the lack of rigorous science coursework. This, Cooley argues, could be the reason for overturned convictions due to botched crime lab analyses. Additionally, factors such as uncontrolled crime scenes, untrained police officers collecting evidence, and differences in laboratory practices may affect the analysis of data (Lynch, 2003). Even “objective” tests of evidence such as fingerprinting and DNA analysis are subject to human interpretation.

When programs such as CSI present scientific evidence as infallible truth, misperceptions of the reality of forensic science are espoused. As demonstrated in research on the criminal justice system, forensic science is subject to error. Even more reliable, long standing tests can still be incorrectly analyzed. However, this is never the case on CSI. The mainstream view as shown in previous research on CSI is that evidence is irrefutable and infallible.

The CSI Effect and Attitudes toward Science

According to Gerbner, Gross, Morgan, and Signorielli (1985), television is one of the primary ways that images of science are conveyed to the public. This assertion is also supported by the National Science Foundation, which found that most Americans chose television as their primary source for information regarding science and technology
(NSF, 2008). Some potentially positive effects of viewing crime dramas are increased viewer interest and belief in science (Stephens, 2006).

Clearly, there is an increased interest in forensic science. According to the American Academy of Forensic Sciences’ website (2008), there are hundreds of academic programs across the country (and the globe) that include some type of training in forensics. These programs range from professional certifications to undergraduate and graduate degrees. Additionally, the Occupational Outlook Handbook states that job opportunities for forensic science technicians are expected to boom within the next decade. The Handbook attributes this growth to the increase in state and local governments’ use of forensic science to “examine, solve, and prevent crime” (Bureau of Labor Statistics, 2008-9). While these statistics point to a particular interest in forensics, it is possible that viewing scientifically based programming like CSI may also increase general interest and faith in science as a whole. The following discussion summarizes research regarding the impact of television in relation to science and scientists.

**Depictions and perceptions of science.** Science themes are common in the television world. According to Gerbner, Gross, Morgan, and Signorielli’s (1981) content analysis of weekday prime-time and weekend daytime television programs between 1969 and 1979, nearly half of all network dramas included science and technology themes. With respect to other themes, science ranks in the top 10 of the 21 most depicted themes. Across the entire sample, science ranked 7th behind popular themes such as sex, home, violence, business, money, and entertainment (respectively) (Gerbner et al., 1981). Gerbner et al. also found that science was more likely to be found in action dramas than in comedy programs, and is often depicted in tandem with violence.
In an analysis of children’s science programming, Long and Steinke (1996) found that science was predominantly portrayed as truth, as fun, as a part of everyday life, and as being for everyone. The programs often depict science in terms of “facts” that command authority. Less dominant themes on the show were “science as magical or mysterious,” “science as dangerous,” and “science as a solution to problems” (Long & Steinke, 1996).

Concurring with findings from Long and Steinke (1996), content analyses of crime dramas show that science is also depicted as a means of truth (Gever, 2005; Mopas, 2007; Nolan, 2006). Science in these shows is the “hero” that allows criminals to be captured. In his critical analysis of CSI, Mopas (2007) asserts that “truth is always equated with objects of evidence. More importantly, the presence of forensic evidence – ‘discovered’ in accordance with the basic principles of the scientific method – allows justice to be served” (p. 111). Gever (2005) supports this analysis and goes one step further by linking scientific depictions with technology. She states that “the locus of truth in CSI resides in expert applications of scientific technologies that organize and produce inscriptions, without troubling with problems of interpretation” (p. 456). Researchers also assert that CSI presents the infallibility of science through the use of technologies. Episodes, according to critical analyses, often depict crime labs full of gadgetry that allows scientists to uncover the truth (Cavender & Deutsch, 2007; Gever, 2005).

While content analyses show the prevalence of science as a dominant theme on television, it is also pertinent to examine people’s attitudes toward science in relation to content. Gerbner et al. (1985) found that heavy viewers of television were less likely to have a favorable attitude toward science. However, those who read science magazines or
watched science documentaries were more likely to have a positive attitude toward science. This result lends support to genre-specific measurement.

It is possible that people who watch crime dramas like *CSI* will be exposed more frequently to scientific themes, and will therefore be more likely to favor science. This proposition is supported by Nisbet et al. (2002). Nisbet et al. found that frequent science television viewers were less likely to have reservations regarding science and technology, whereas frequent viewers of television as a whole were more likely to have such doubts. Reservations in this study primarily concerned the impact of science on society (e.g., “science makes our way of life change to fast” and “we depend too much on science and not enough on faith,” p. 596).

However, total viewing was positively related to participants’ perceptions of the “promise of science” in society (Nisbet et al., 2002). Promise of science is defined in this study as the “respect for the intentions of scientists, a sense that science and technology provide useful results and products for society, and the assumption that future benefits from science and technology are likely” (p.588). Science television viewing was only slightly related to the promise of science. Nisbet et al. argue that portrayals of science are mixed in the mainstream of television. On the one hand, heavy television viewers hold negative perceptions regarding the role of science in society, but they feel hopeful that science will have the positive effects for improving our lives.

Survey results from the National Science Foundation show that Americans are interested in science (NSF, 2008). Between 2001 and 2006, 83%-87% of people surveyed indicated they had “a lot” or “some” interest in new scientific discoveries. Additionally, in 2006, over half of the participants surveyed indicated that the benefits outweighed the
harm of science (NSF, 2008). While it is a leap of faith to assume that crime dramas are responsible for public opinion regarding science, it is, however, relevant to link television viewing to opinions regarding science. As discussed earlier, television is a major source of scientific information. Crime dramas are centralized around science (forensic science in particular) and depict science in a positive light.

**Portrayals and perceptions of scientists.** While science is often shown on television, scientists are not (Gerbner et al., 1985). According to Gerbner et al.’s content analysis, scientists that appear in major roles were rarely depicted on television (approximately 11 to 1, compared to medical doctors). When shown, they were often portrayed as old, strange, and uninvolved in family or romance (Gerbner et al., 1981; 1985). They were more likely than doctors or law enforcers to be depicted as villains. Additionally, scientists have the highest casualty rate of all occupational groups on television, including soldiers and police officers.

When analyzing children’s science programming, Long and Steinke (1996) found that scientists are often portrayed as all-knowing. The researchers assert that this result is supported by the fact that on the shows the experiments never fail, and thus everything the scientists say or do is “proven” correct. None of the shows depicted scientists as evil or violent, which is contrary to Gerbner’s findings. However, given that the shows are aimed at getting children interested in science, this result makes sense. Overall, scientists were predominantly portrayed as elite, omniscient, and friendly (Long & Steinke, 1996).

With respect to *CSI* and crime dramas, scientists also tend to be portrayed in a positive light. According to Nolan’s (2006) analysis of *CSI*, criminal investigators (who are often considered scientists on the program) are frequently depicted more positively
than police officers. He states, “police officers are depicted as bumbling, clueless functionaries who are barely tolerated by the dedicated, conscientious, and ultimately moral ‘scientists’ who search for truth amid the chaotic and gruesome remnants of the violent acts of those soon to be caught” (p. 577). The program also features many forensic technicians who, incorrectly, are referred to as scientists (Nolan, 2006).

As in Long and Steinke’s (1996) research, Nolan (2006) found crime scene detectives are depicted as all-knowing and elite. They are able to solve crimes that regular police officers are not. In using their scientific skills to detect “the truth,” forensic scientists are lauded as the hero. When analyzing the main characters of CSI, Nolan states, “ultimately, Grissom [one of the primary detectives] is presented as the image of deified scientist: a prophetic, saintly, incarnation of the true man-god – the earthly embodiment of science and truth” (p. 586). As with Long and Steinke’s findings, CSI detectives are not portrayed as mad or evil – they fight the evil people who commit criminal acts.

When determining people’s perceptions of scientists, Gerbner et al. (1985) found that heavy viewers of television had a negative attitude toward scientists. Heavy viewers were also more likely to believe that scientists are odd and peculiar, primarily work minded, and do not spend much time with family. Additionally, when asked how participants would rate being a scientist against “most other jobs,” heavy viewers were less likely to report scientific jobs as being “better than most” (Gerbner et al., 1985). These findings coincide with the television mainstream examined by Gerbner et al. in the message system analysis mentioned previously.
Based on these findings, it seems that the television world has changed since Gerbner et al.’s (1985) study in regards to science and scientists. Whereas past research shows science and scientists as being negative, today’s version of science may be seen in as being more optimistic. Crime dramas depict scientists and science as a proven method of solving crimes and catching criminals. These shows portray the merits of scientific advancement and show science careers as being heroic. Therefore, it is very possible that the mainstream view, at least regarding the crime drama genre, will differ from Gerbner’s (1985) research.

In summary, the current study will seek to expand knowledge of the impact of crime drama viewership on expectations of the presentation of scientific evidence at criminal trials, beliefs of the infallibility of forensic evidence, and viewer orientations toward science, scientists, and forensic investigators. The following section outlines the hypotheses of interest for the proposed study.

**Hypotheses and Research Questions**

As discussed previously, cultivation theory proposes that second order mainstreaming effects occur when heavy viewing is related to participants’ value beliefs gleaned from the television view of the world. Figure 1 displays the projected relationships outlined below. Based on previous research citing the association between *CSI* viewing and the prevalence of forensic evidence in criminal trials (Nolan, 2006; Podlas, 2006; Shelton et al., 2006), the following hypothesis is proposed:

**H1a-d:** There will be a positive relationship between frequency of viewing crime dramas and the extent to which participants are likely to expect scientific evidence
to be presented in a) every criminal case, b) murder or attempted murder cases, c) rape or other criminal sexual assault cases, and d) any theft case.

Due to the fact that murders and rapes are the most common crimes depicted on CSI (Cavendar & Deutsch, 2007; Podlas, 2006), expectations of scientific evidence may be strongest in these instances. Shelton et al. (2006) found some support for this assertion, finding that expectations for the presentation of DNA evidence were highest for rape and murder cases. Therefore, the following hypothesis is proposed:

H2a-b: The correlation between crime drama viewership and expectations of scientific evidence for a) rape cases and b) murder cases will be significantly greater than the correlation between crime drama viewership and expectations of scientific evidence in theft cases.

In addition to the prevalence of evidence at criminal trials, second order cultivation effects can also be applied to viewers’ beliefs of the infallibility of forensic evidence. Previous research regarding the CSI effect points to a great concern over people’s faith in forensic evidence and science (Lieberman et al., 2008; Podlas, 2006; Stephens, 2006; Tyler, 2006). This assertion, however, has not been empirically tested. Therefore, the following hypothesis is advanced:

H3: There will be a positive relationship between the frequency of crime drama viewing and the extent to which participants believe that forensic evidence is infallible.

While research by Gerbner et al. (1985) shows that attitudes toward science are often negative, more recent research has shown a more positive view (Long & Steinke, 1996; Nisbet et al., 2002). Content analyses of crime dramas have shown that science is
often depicted as the hero (Cavendar & Deutsch, 2007; Gever, 2005). Therefore, it is believed that today’s television mainstream will produce positive viewer attitudes. From this assumption, the following hypothesis is proposed:

H4: There will be a positive relationship between the frequency of crime drama viewing and the extent to which participants indicate a favorable orientation toward science.

As with science depictions, past research has pointed to a negative view of scientists (Gerbner et al., 1981; 1985). However, more recent depictions of this career path may yield different attitudes. Recent research regarding depictions of scientists points to a more positive view (Long & Steinke, 1996; Nolan, 2006). Additionally, the portrayal of forensic scientists in particular seems to add support to a positive mainstream view of the scientific profession. Therefore, the following hypothesis is proposed:

H5a-b: There will be a positive relationship between the frequency of crime drama viewing and the extent to which participants indicate a favorable orientation toward a) scientists in general, and b) forensic investigators specifically.

Recent research has shown that genre viewership has yielded the strongest cultivation relationships (Appel, 2008; Hawkins & Pingree, 1981; Potter & Chang, 1990). Theoretically, however, total viewership is still recognized as the primary driving variable (Gerbner et al., 1980; 1985; Shanahan & Morgan, 1999). Yet, recent research has shown that total television exposure measures have a mixed or diminished role in determining cultivation effects (Appel, 2008; Hawkins & Pingree, 1981; Hetsroni & Tukachinsky, 2006). Given that the theory still proposes a holistic measure of exposure,
yet research has shown a possible diminished role of overall viewing, the following research question is proposed:

RQ1a-d: Will increases in overall television viewing be significantly related to a) an increased likelihood of forensic evidence to be presented in each of four types of criminal trials, b) beliefs in the infallibility of forensic evidence, c) a positive orientation towards science, and d) a positive orientation towards scientists and forensic investigators.

While cultivation theory proposes overall viewing as the most important variable in the cultivation process, scholars have more recently argued for the importance of genre measurement as the correct way to measure television exposure (Potter, 1993; 1994). Therefore, the following hypothesis is proposed:

H6a-d: Frequency of genre viewing will be more strongly related than overall television exposure to the following dependent variables: a) an increased likelihood of forensic evidence to be presented in each of four types of criminal trials, b) beliefs in the infallibility of forensic evidence, c) a positive orientation towards science, and d) a positive orientation towards scientists and forensic investigators.

When examining genre, it is possible that some crime shows may have more of an impact on the dependent variables than others. While all the shows chosen for this study exhibit some forensic component, certain programs like CSI may dedicate more time to forensic themes. Therefore, the following research question is proposed:

RQ2a-d: Is frequency of viewing some specific crime drama programs significantly related to: a) an increased likelihood of forensic evidence to be
presented in each of four types of criminal trials, b) beliefs in the infallibility of forensic evidence, c) a positive orientation towards science, and d) a positive orientation towards scientists and forensic investigators.

Due to mixed findings regarding the role of demographic controls, further exploration regarding control variables is needed (Appel, 2008; Doob & MacDonald, 1979; Gerbner et al., 1980; Gross & Aday, 2003; Hughes, 1980). Most of the studies conducted regarding demographic controls have been conducted using total viewing as the independent variable. It is unclear how the relationship between genre viewership and dependent variables will be affected when controlling for demographics. Therefore, the following research question is proposed:

RQ3a-d: How will controlling for gender, age, ethnicity, educational level and science education impact genre viewership’s prediction strength regarding the following dependent variables: a) an increased likelihood of forensic evidence to be presented in each of four types of criminal trials, b) beliefs in the infallibility of forensic evidence, c) a positive orientation towards science, and d) a positive orientation towards scientists and forensic investigators?
Predictor variables

Dependent variables

Average weekly crime drama viewership

Expectation of scientific evidence in:
- a) every criminal case,
- b) murder or attempted murder,
- c) rape or other criminal sexual assault case, and
- d) any theft case

Strength of belief that forensic evidence is infallible.

Favorable orientation toward science.

Favorable orientation toward:
- a) Scientists in general
- b) Forensic investigators (specifically)

Demographics: Sex, Education, Number of Science Classes Taken, Ethnicity

RQ1a-d

H1 a-d; H2 a-b

H3

H4

H5 a-b

RQ2a-d

RQ3a-d

RQ1a-d

H6 a-d

Average television viewership

Program specific effects

Figure 1. Cultivation Process of the CSI Effect.
Chapter III

Methodology

The purpose of this study is to explore the impact of crime drama viewership on people’s perceptions of forensic evidence, science, scientists, and forensic investigators. To this end, a pilot study was conducted to develop new measures and validate existing measures necessary for testing these variables. This study was approved by the Kent State University Institutional Review Board as a Level 1 project. Informed consent was required on the first page of the survey in order to access the instrument.

Pilot Study

Participants and Procedures

Participants in this study were faculty and students at Kent State University at Stark. All people 18 years of age and older were allowed to take the survey. According to Nielsen ratings for the 2007-2008 year, CSI was rated in the top 20 programs for viewers 18-49 (Gorman, 2008). In order to gain more range in age, faculty were surveyed. For the pilot study, a convenience sample was obtained using the Stark faculty listserv. An email was sent to the listserv requesting faculty to take the survey as well as pass it along to their students. In the email was a hyperlink to the survey. Qualtrics, an online survey design program, was used to construct and implement the survey. Informed consent was obtained through the survey. Entry to the survey was not allowed unless the participant indicated a willingness to participate. No incentives were offered as compensation for involvement in the pilot study.

The total sample consisted of 96 participants. There were 26 men and 67 women (3 respondents did not indicate gender). The sample ranged in age from 19 to 66, with a
mean age of 35 years ($SD = 14.3$). The majority of participants identified themselves as being Caucasian (87.5%). Other represented ethnicities were African American (4.2%), Hispanic/Latin (1%), Asian/Pacific Islander (2.1%), and other (4.2%). One participant did not indicate ethnicity. Appendix G shows the demographic questions as they appeared on the survey.

As expected, the sample was highly educated, with nearly 50% of the sample having obtained a master’s or doctoral degree ($n = 44$). With respect to education in science, participants indicated having taken an average of 3.93 ($SD = 5.40$) courses in the natural sciences (chemistry, physics, biology, etc.), 5.65 ($SD = 7.36$) courses in the social sciences (psychology, sociology, anthropology, etc.), and 1.21 ($SD = 1.98$) courses in computer sciences or technologies.

**Pilot study results: Measurement development**

**Total television viewing.** Participants were asked to indicate how many hours they watch television during four time periods: 6 a.m. to noon, noon to 6 p.m., 6 p.m. to midnight, and midnight to 6 a.m. Drop down menus allowed participants to indicate their time of viewing by 15 minute intervals, ranging from 0 to 6 hours (see Appendix A). Respondents self-reported their television viewing for the average weekday, Saturday, and Sunday. Average daily television viewing was then computed by summing the total viewing for each indicator (weekday, Saturday, and Sunday), weighting the weekday measure by 5, and then dividing the total number by 7. This method has been used in past cultivation research (Gerbner et al., 1985; Nabi & Sullivan, 2001).

According to Nabi and Sullivan (2001), this measurement method produced average television hours that paralleled those derived from Nielsen regarding the average
adults’ television viewing. In the pilot study sample, the average daily viewing was 3.27 hours ($SD = 2.48$). This is less than the national average for adult television viewership of 4 hours and 49 minutes for the 2008-09 year (Nielsenwire, 2009).

**Crime drama viewership.** In order to choose the programs to include in the crime drama genre, shows were chosen from TV Guide’s 100 most popular TV shows (tvguide.com, 2009). In this study, crime dramas are defined as scripted programs that focus on criminal investigations. To determine if a program was a crime drama, program descriptions were informally analyzed using TV Guide.com and TV.com’s program summaries. Mentions of criminal investigations or forensic science in the program summaries would qualify a program as a crime drama. This technique produced 14 crime programs: *NCIS, Bones, The Closer, CSI: Miami, CSI: NY, Criminal Minds, Law & Order: Criminal Intent, Cold Case, Law & Order: SVU, The Mentalist, CSI, NUMB3RS, Dark Blue, and Without a Trace* (see Appendix B). These shows were also included in Shelton et al.’s (2006) index of crime programming. All of these shows, with the exception of programs aired after Shelton’s study (e.g., *The Closer, The Mentalist, and Dark Blue*), were categorized as forensic dramas or general crime dramas.

In order to quantify crime drama viewership, participants were asked how often they watch each program on a 6-point Likert-type scale. Responses ranged from 1 (never watch) to 6 (regularly watch). Similar measurement has been used by previous researchers when measuring genre viewership (Appel, 2008, Ferris, Smith, Greenberg, & Smith, 2007; Goidel, Freeman, & Procopio, 2006; Shelton et al., 2006). Scores for each crime drama program were averaged to form a crime drama genre measure. Ferris et al.
(2007) utilized this procedure with 11 reality dating programs and found that reality
dating genre measurement was a reliable measure ($\alpha = .95$).

In order to develop a crime drama viewership measure, first frequencies were
calculated to see if the programs were watched by the sample. From this data, it was
found that one show, *Dark Blue*, was only watched by two participants. Further analysis
of intercorrelations between shows revealed that this program was not significantly
correlated with eight of the 14 programs. One reason for the lack of viewership might be
that *Dark Blue* premiered only a few months before the survey was conducted. The show
exhibited a decline in viewership throughout the season, dropping from 3.5 million
viewers during the premier to 1.6 million by the finale (Tvseriesfinale.com, 2009).
Therefore, this program was dropped from the analysis.

After removing *Dark Blue*, reliability analysis was conducted on the remaining 13
programs. Cronbach’s alpha for this measure was reliable ($\alpha = .87$), despite possible
effects of specific program dedication. Although internal consistency across the program
list was found, this high alpha could be due to the frequent number of “1” responses
(never watch). A composite mean score across each of the programs was calculated to
indicate genre viewership. Analysis of crime drama viewership in this sample showed
that participants seldom watched crime dramas overall ($M = 1.06, SD = 1.03$).

Further examination of genre viewership was conducted to explore these results.
Each program was re-coded as a dichotomous, yes/no variable. If a participant indicated
that they had seen the show at least once, they were coded as a 1. If they had never seen
the show, they were coded with a 0. On average, participants watched 4.66 ($SD = 3.84$)
crime drama programs at least once.
Expectations of forensic evidence. This measure was derived from Shelton et al.’s (2006) study. In the Shelton et al. study, participants were given seven criminal trial scenarios and were asked to indicate whether they expected different types of evidence to be present. Responses were based on a “yes,” “no,” “unsure” basis. The seven scenarios were as follows: every criminal case, murder or attempted murder, physical assault of any kind, rape or other criminal sexual conduct, breaking and entering, any theft case, and any crime involving a gun. Due to the fact that rapes and murders are the most depicted crime on crime dramas (Cavendar & Deutsch, 2007; Podlas, 2006), these two scenarios were utilized in this study. To provide comparison as well as to support Shelton et al.’s research regarding participant expectations for the “every criminal case” category, “every criminal case” as well as “any theft case” were also used in this study. See Appendix C for the measures from the actual survey.

As conducted in Shelton et al.’s study (2006), multiple forms of evidence were presented to participants. Rather than answer on a “yes/no” response format, the pilot study measured the likelihood of evidence being presented in each of the four scenarios on a continuous, Likert-type scale. For example, respondents were asked, “In a criminal trial for murder or attempted murder, how likely do you think it is that each of the following types of evidence will be presented?” Responses for each type of evidence ranged from 1 (very unlikely) to 5 (very likely).

The types of evidence presented to participants included scientific evidence found to be most often portrayed on CSI by Podlas (2006). These included print evidence, blood analysis, fiber/hair analysis, rape kit/semen, gun(ballistics, drug/toxicology analysis, and DNA. Items derived from Shelton et al. (2006) included eyewitness testimony from the
alleged victim, eyewitness testimony from at least one other witness, circumstantial evidence, scientific evidence of some kind, DNA, and ballistics evidence.

Upon combining the two studies’ results, Podlas’ rape kit evidence was dropped due to crime specificity. Shelton et al.’s circumstantial evidence was deemed too vague, so this item was dropped as well. Therefore, seven scientific evidence items were maintained: DNA evidence, blood analysis, ballistics or other firearms laboratory evidence, fiber or hair analysis, drug or toxicology analysis, print evidence, and scientific evidence of some kind. The non-scientific evidence types measured in Shelton et al. (i.e., eyewitness testimony) were included in order to hide the purpose of the study. When combined, the measure included nine types of evidence that might be present at a criminal trial.

To assess the reliability of scientific evidence expectations, Cronbach’s alphas were conducted with the seven types of scientific evidence in each of the four criminal cases (see Table 1). Reliability for the scientific evidence measures were acceptable for murders, theft, rape and every crime situations (alphas of .85, .82, .82, and .92, respectively). While it is possible that some forms of scientific evidence may not be warranted in all criminal cases, the sufficient alpha levels indicate that these items have internal consistency and can be included as one measure.

After measuring reliability, composite measures were computed for the scientific evidence within each criminal situation. Expectations for scientific evidence across crime type were generally high. Mean scores were highest for murder ($M = 4.23, SD = .56$) and rape cases ($M = 4.02, SD = .65$), followed by “every criminal case” ($M = 3.39, SD = .86$) and theft cases ($M = 2.95, SD = .73$).
Table 1

*Means and Reliabilities for the Expectation of Scientific Evidence Measures (Pilot Study)*

<table>
<thead>
<tr>
<th>Scientific Evidence Measures</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder Case</td>
<td>96</td>
<td>4.23</td>
<td>0.56</td>
<td>α = .85</td>
</tr>
<tr>
<td>Theft Case</td>
<td>94</td>
<td>2.95</td>
<td>0.73</td>
<td>α = .82</td>
</tr>
<tr>
<td>Rape Case</td>
<td>96</td>
<td>4.02</td>
<td>0.65</td>
<td>α = .82</td>
</tr>
<tr>
<td>Every Criminal Case</td>
<td>96</td>
<td>3.39</td>
<td>0.86</td>
<td>α = .92</td>
</tr>
</tbody>
</table>

*Note. N* = 96. Scientific evidence includes the following items: DNA evidence, blood analysis, ballistics or other firearms laboratory evidence, fiber or hair analysis, drug or toxicology analysis, print evidence, and scientific evidence of some kind. Scale items are measured with a 5-point scale, ranging from 1 = Very Unlikely to 5 = Very Likely.

**Infallibility of forensic science.** To this author’s knowledge, no measure of people’s beliefs regarding the infallibility of forensic evidence exists. Therefore, a new measure of this construct was developed. The items were derived from assertions proposed by *CSI* and crime drama researchers (Cavender & Deutsch, 2007; Cooley, 2006; Gever, 2005; Mopas, 2007; Nolan, 2006; Podlas, 2006; Stephens, 2006; Tyler, 2006). Fourteen items were derived from this research, including four reverse coded items (see Appendix D).

In order to determine which items would comprise the infallibility measure, item correlations were calculated. Five items that did not significantly correlate well with the remaining items were eliminated. These items were “DNA evidence can lead to different interpretations,” “confessions are unnecessary when there is forensic evidence linking a person to a crime,” “crime scene evidence is not always accurate,” “scientific evidence doesn’t lie,” and “forensic evidence of guilt exists in every crime.”

After eliminating these items, a principal component exploratory factor analysis was conducted with the remaining nine items to determine if infallibility was a multi-
dimensional construct. According to Bartlett’s test of sphericity \( \chi^2(36) = 309.45, p < .001 \), items in the factor analysis were highly correlated enough to conduct a factor analysis. Varimax rotation was used to extract interpretable factors. Eigenvalues greater than or equal to 1.0 were necessary for items to be included as a factor. A 60/40 loading criterion was used to determine which items cleanly loaded on each factor. Two items did not meet this criterion and were eliminated: “forensic science is incapable of error” and “forensic evidence can lead to the conviction of an innocent person.”

After eliminating these two items, another factor analysis was conducted using the same criteria as the previous test. Two interpretable factors emerged from this analysis, accounting for 63.8% of the variance in scores. Table 2 displays the items and factor loadings for the rotated factors.

The first factor, \textit{Perceived Utility}, is comprised of items that deal with the how useful forensic evidence is in order to solve crimes. This factor consists of four items: “the only true way to tell if a person committed a crime is through forensic evidence,” “forensic evidence leads to a singular, correct answer,” “every crime can be solved through forensic evidence,” and “forensic evidence is proof of guilt.” \textit{Perceived Utility} accounted for 37.58% of the variance in scores (eigenvalue = 3.32). This indicator has good reliability, with a Cronbach’s alpha of .83.

The second factor, \textit{Perceived Objectivity}, includes three items and accounted for 26.22% of the variance (eigenvalue = 1.14). This factor includes items that encompass the idea that forensic evidence is incapable of misinterpretation. Items that loaded on this factor were “interpretation of forensic evidence is not influenced by personal feelings,” “interpretation of forensic evidence is free from bias,” and “forensic investigators can
misinterpret scientific evidence (reverse coded).” This factor had a somewhat lower reliability ($\alpha = .64$).

Table 2

*Factor Loadings for the Infallibility of Forensic Science Measure (Pilot Study)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Utility ($\alpha = .83$)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every crime can be solved through forensic evidence.</td>
<td>2.10</td>
<td>0.86</td>
<td><strong>.81</strong></td>
<td>.17</td>
</tr>
<tr>
<td>The only true way to tell if a person committed a crime is through forensic evidence</td>
<td>2.32</td>
<td>0.78</td>
<td><strong>.80</strong></td>
<td>.05</td>
</tr>
<tr>
<td>Forensic evidence is proof of guilt.</td>
<td>2.47</td>
<td>0.92</td>
<td><strong>.77</strong></td>
<td>.17</td>
</tr>
<tr>
<td>Forensic evidence leads to a singular, correct answer.</td>
<td>2.21</td>
<td>0.75</td>
<td><strong>.74</strong></td>
<td>.41</td>
</tr>
</tbody>
</table>

| **Perceived Objectivity ($\alpha = .64$)**                            |      |     |          |          |
| Forensic investigators can misinterpret scientific evidence.          | 2.04 | 0.78| -.04     | **.79**  |
| Interpretation of forensic evidence is not influenced by personal feelings. | 2.53 | 0.89| .26      | **.74**  |
| Interpretation of forensic evidence is free from bias.               | 2.20 | 0.89| .35      | **.65**  |

<table>
<thead>
<tr>
<th>Eigenvalues</th>
<th>3.32</th>
<th>1.14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37.58</td>
<td>26.22</td>
</tr>
</tbody>
</table>

*Note. N = 96. Scale items are measured with a 5-point scale, ranging from 1 = strongly disagree to 5 = strongly agree.*

**Orientation toward science.** Gerbner et al.’s (1985) orientation towards science measure was modified for the pilot study (see Appendix E). The original scale consisted of five items with an acceptable reliability (Armor’s Theta = .69). Bauer, Durant, and Evans (1994) utilized 1988 national survey data from Britain and the United States that included two items from Gerbner’s original measure as well as six other items from the national survey. The researchers included all eight items and found that after factor analysis, the orientation toward science measure was not unidimensional. Bauer et al. used only three items from the orientation index, with this measure resulting in a low
reliability ($\alpha = .46$). The National Opinion Research Center’s (NORC) General Social Survey (2008) included some of Gerbner’s science orientation measures as well as those in Bauer et al.’s study in their survey. They also, however, added several other items relevant to science attitudes. As the items were analyzed individually and not scaled by NORC, reliability measures are unavailable for these items.

Due to inconsistent reliability and the possibility of a multi-pronged orientation toward science, a measure was derived combining items from the three above mentioned studies. Three items derived from Gerbner et al.’s (1985) study were revised in order to remove biased language and double-barreling. The resulting items from this revision were “science makes our way of life change too fast (reverse coded),” “science makes our lives healthier,” “science makes our lives easier,” “science makes our lives more comfortable,” and “science is more likely to cause problems than to find solutions (reverse coded).” Two items from Gerbner’s original measure were not included due to questionable face validity (“one of the bad effects of science is that it breaks down people’s ideas of right and wrong” and “the growth of science means that a few people could control our lives”).

Two additional items replicated in the Bauer et al. (1994) study that were measured in the Gerbner et al. (1985) study but not included in the orientation measure were “we depend too much on science and not enough on faith (reverse coded)” and “the benefits of science are greater than any harmful effects.” The remaining three items included in the pilot study were derived from the NORC (2008) study: “because of science, there will be more opportunities for the next generation,” “even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is
necessary,” and “scientific research should not be supported by the federal government (reverse coded).” All items were measured on a 1 (strongly disagree) to 5 (strongly agree) Likert-type scale.

In order to determine the dimensionality of the orientation of science measure, a principle components factor analysis using Varimax rotation was conducted. Bartlett’s test of sphericity revealed that there was a sufficient structure to conduct a factor analysis \[ \chi^2(45) = 202.62, p < .001 \]. Eigenvalues of 1.0 or greater were necessary to be included as a factor. A 60/40 loading criterion was used to determine which items cleanly loaded on each factor.

From this factor analysis, three factors emerged. However, these factors did not make conceptual sense. Reverse coded items loaded together on one factor, and other items did not cluster as would be expected. In order to further analyze this construct, correlations were examined to determine which items were most highly correlated. From this analysis, three items were observed to have the highest correlations: “science makes our lives easier,” “science makes our lives more comfortable,” and “the benefits of science are greater than any harmful effects.” After examination, these items make conceptual sense, being that they each encompass a general attitude of the value of science. A principal component analysis was performed on these three items. Bartlett’s test of sphericity was significant \[ \chi^2(3) = 82.12, \ p < .001 \].

The principal component analysis yielded one interpretable factor (eigenvalue = 1.96). This three item solution explained 65.46% of the variance in scores. Factor loadings for “science makes our lives easier,” “science makes our lives more comfortable,” and “the benefits of science are greater than any harmful effects” were .87,
.90, and .63, respectively. Reliability analysis for this measure was acceptable, with a Cronbach’s alpha of .71. The mean for this measure was higher than neutral, showing that this sample had a positive attitude toward science ($M = 3.71$, $SD = .65$).

**Orientation toward scientists and forensic investigators.** The orientation toward scientists and forensic investigators items were derived from Gerbner et al.’s (1985) orientation toward scientists measure. The orientation toward scientists measure consists of nine items, with Armor’s Theta reliability of .78. Gerbner et al. conducted a factor analysis on these items and determined that this measure was unidimensional. Therefore, this measure will be revised for clarity and replicated in this study. Two items were dropped from the original measure to increase face validity, resulting in the seven item measure shown in Appendix F. The dropped items were: “scientists are apt to be foreigners” and “scientists are mainly interested in knowledge for its own sake and don’t care much for its practical value.” Items were measured on a 1 (strongly disagree) to 5 (strongly agree) Likert-type scale. In order to compare perceptions of scientists and forensic investigators, items were modified to replace “scientist” with “forensic investigator” (also shown in Appendix F). Because the items in this measure were negatively worded (e.g., “scientists are odd and peculiar people), lower scores indicated a more positive orientation toward scientists and forensic investigators.

The measures of orientation toward scientists and orientation toward forensic investigators were subjected to separate factor analyses. In each case, a principal components analysis with varimax rotation was used. Bartlett’s test of sphericity for the scientist measure and the forensic investigator measure revealed a sufficient structure to conduct a factor analysis ($\chi^2(15) = 266.42, p < .001$, $\chi^2(15) = 392.93, p < .001$,}
respectively). In order for an item to be included in the factor, the 60/40 rule was applied. In the initial analysis of items measuring “orientation toward scientists,” one item, “scientific work is dangerous,” did not load with the other items and was eliminated from the measure. Another principal components factor analysis was then conducted on the remaining six items.

For the orientation toward scientists measure, factor analysis revealed a unidimensional structure (see Table 3 for factor loadings and item means). The six items explained 57.52% of the variance in scores (eigenvalue = 3.45). Reliability for this scale exceeded the previous measure derived by Gerbner et al. (1985), with a Cronbach’s alpha of .84. Participants in this sample had a positive orientation toward scientists ($M = 2.13$, $SD = .70$). Items in this scale are negatively worded, therefore lower means indicate a more positive attitude toward scientists.

Table 3

*Factor Loadings for Orientation toward Scientists Measure (Pilot Study)*

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation toward Scientists ($\alpha = .84$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientists…</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…do not get as much fun out of life as other people do.</td>
<td>1.96</td>
<td>0.86</td>
<td>.64</td>
</tr>
<tr>
<td>…usually do not get married.</td>
<td>1.79</td>
<td>0.88</td>
<td>.80</td>
</tr>
<tr>
<td>…who are married do not spend much time with their families.</td>
<td>2.07</td>
<td>0.90</td>
<td>.82</td>
</tr>
<tr>
<td>…are odd and peculiar people.</td>
<td>2.24</td>
<td>1.12</td>
<td>.78</td>
</tr>
<tr>
<td>…are not likely to be very religious people.</td>
<td>2.56</td>
<td>1.04</td>
<td>.65</td>
</tr>
<tr>
<td>…have few outside interests beyond their work.</td>
<td>2.13</td>
<td>0.80</td>
<td>.83</td>
</tr>
</tbody>
</table>

*Note.* $N = 96$. Items were measured with a 5-point scale, ranging from 1 = strongly agree, to 5 = strongly disagree. Lower scores indicate a more positive attitude toward scientists.
In the initial analysis performed on the orientation toward forensic investigators items, the item “forensic science is dangerous” did not load with the other items. It was removed from the measure. After conducting a second factor analysis on the remaining six items, it was found that the forensic investigator measure was unidimensional (see Table 4 for factor loadings and item means). The six item measure explained 70.66% of the variance in scores and had an eigenvalue of 4.24. This measure had very good reliability ($\alpha = .91$). People had a positive orientation toward scientists in this study, showing a scale mean score of 2.07 ($SD = .71$). As with the orientation toward scientists measure, lower means indicate a more positive attitude toward forensic investigators due to negative item wording.

Table 4

*Factor Loadings for Orientation toward Forensic Investigators Measure (Pilot Study)*

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation toward Forensic Investigators ($\alpha = .91$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forensic Investigators…</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…do not get as much fun out of life as other people do.</td>
<td>2.02</td>
<td>0.88</td>
<td>.79</td>
</tr>
<tr>
<td>…usually do not get married.</td>
<td>1.90</td>
<td>0.79</td>
<td>.91</td>
</tr>
<tr>
<td>…who are married do not spend much time with their families.</td>
<td>2.15</td>
<td>0.88</td>
<td>.84</td>
</tr>
<tr>
<td>…are odd and peculiar people.</td>
<td>2.13</td>
<td>0.94</td>
<td>.86</td>
</tr>
<tr>
<td>…are not likely to be very religious people.</td>
<td>2.22</td>
<td>0.81</td>
<td>.74</td>
</tr>
<tr>
<td>… have few outside interests beyond their work.</td>
<td>2.00</td>
<td>0.79</td>
<td>.89</td>
</tr>
</tbody>
</table>

*Note. N = 96. Items were measured on a 5-point scale, ranging from 1 = strongly agree, to 5 = strongly disagree. Lower scores indicate a more positive attitude toward forensic investigators.*

**Primary Study**

The purpose of the pilot study was to create new measures and to verify pre-existing measures. Reliable measures were produced from this analysis. The results of the
pilot analyses were implemented in the primary study. The following discussion describes the primary study method, results, and implications for this research.

Participants

The sample consisted of students enrolled in the basic communication course at a large Midwestern university and a snowball sample of adults over the age of 25. The basic course is part of the university liberal education requirement, and includes students from various majors. According to the US Department of Education (2008), most full-time college students fall between the ages of 18 and 24 years. Given that the target audience for crime drama programs like CSI is viewers 18-49 years of age (Gorman, 2008), it was necessary to include participants beyond the college student age range.

After eliminating responses that were incomplete, the sample size was 188. Using Cohen’s (1988) calculation formula for sample size, a minimum sample of 140 is an adequately powered sample. This sample provides 80% power to detect a correlation with a moderate effect size ($r = .30$) at $p < .05$, using a two-tailed test. The mean age in this sample was 27.03 ($SD = 13.47$). Sixty percent of the sample was female ($n = 113$), with one person not indicating sex. With regards to ethnicity, 85.6% of the sample indicated they were Caucasian, 7.4% African American, 2.1% American Indian, 1.6% Asian/Pacific Islander, and 1.1% Hispanic/Latin. Two percent indicated “other,” with responses ranging from “mixed” to “Middle Eastern.”

Overall, the sample was highly educated. Twenty-one percent of the sample indicated that they had obtained a high school degree or GED. The majority of the sample had experience in college. A total of 71.7% reported some college education ($n = 109$), an Associate’s degree ($n = 5$), or a Bachelor’s degree ($n = 20$). An additional six
percent of the sample had an advanced degree (Master’s: \( n = 10 \); Doctorate; \( n = 2 \)). With regard to the number of courses in the sciences or law, respondents had taken the most courses on average in the social sciences (\( M = 2.68, SD = 3.30 \)), followed by the natural sciences (\( M = 2.01, SD = 3.87 \)), computer science (\( M = 1.28, SD = 3.60 \)), and criminal justice (\( M = .28, SD = .73 \)). Additionally, the sample had very little personal experience with jury trials; only eight participants (4.3%) reported having sat on a jury trial.

**Procedure**

This study utilized an online questionnaire with a snowball sampling technique. The instrument was designed using the Qualtrics design tool and was administered online. Students were notified that the survey was available online and received course credit for participation. The final sample consisted of 135 total participants obtained from the student sample. Students received additional credit upon forwarding the hyperlink to 10 of their acquaintances over the age of 25. Participants in the snowball portion of the sample were given the opportunity to win one of two $50 gift cards to Amazon.com chosen at random. The snowball sampling technique resulted in 55 non-student participants. Both samples were combined when analyzing the data.

This research was approved by the Kent State University Institutional Review Board as a Level 1 study. Informed consent was required on the first page of the survey in order to access the instrument. As part of the thank you screen, an additional link was provided directing participants to enter their email address to receive credit or be entered into the drawing. This information was kept separate from the responses to maintain anonymity of the data.
Independent Variable Measures

**Total weekly television viewing.** As conducted in the pilot test, participants were asked to indicate how many hours they watch television during four time periods: 6 a.m. to noon, noon to 6 p.m., 6 p.m. to midnight, and midnight to 6 a.m. Drop-down responses for each time period ranged from 0 to 6 hours in 15 minute increments. These measures were taken for the average weekday, Saturday, and Sunday viewing (see Appendix I). Average weekly viewing was then derived by summing the score (weighting the weekday sum by 5). This procedure has been used in previous research by Gerbner et al. (1985) and Nabi & Sullivan (2001).

**Crime drama viewership.** For this measure, 10 programs utilized in the pilot study were included (see Appendix H). These shows are: *NCIS, Bones, The Closer, CSI: Miami, CSI: NY, Criminal Minds, Law & Order: Criminal Intent, Law & Order: SVU, The Mentalist,* and *CSI: Crime Scene Investigation.* Since the pretest, three programs had been cancelled: *Without a Trace, Cold Case,* and *NUMB3RS.* Also since the pretest, four new crime programs premiered and were added in this study. These were: *CSI: Las Vegas, NCIS: Los Angeles, Law & Order: Los Angeles,* and *Body of Proof.*

In order to attempt to mask the intent of the study, ten non-crime drama programs were included in the list of programs. The latter programs were chosen from the primetime fall 2010 TV lineup (Fergus, 2010) and cross-listed with TV Guide’s “Most Popular Shows” (2010). These shows include: *Dancing with the Stars, Glee, Dateline NBC, Chuck, Grey’s Anatomy, The Office, Private Practice, Family Guy, House M.D.,* and *Desperate Housewives.*
Participants were asked how many hours they watched each program in an average week. This measure differs from the pilot test, where participants were asked how often they watched each crime drama on a Likert-type scale ranging from (1) never watch to (6) regularly watch. Measuring exposure in time increments provides a more specific and clear assessment of weekly crime drama viewership. Thus, in the primary study, drop-down menu responses for each show ranged from 0 to more than 12 hours in half hour increments. The weekly crime drama measure was then computed by summing the total amount of viewing for each of the crime programs. A similar method has been used in previous research by Potter and Chang (1990).

**Demographics**

For descriptive and analytical purposes, participants’ age, biological sex, level of education, and ethnicity were determined. Previous research has shown that sex, ethnicity, age, and education have had an impact on cultivation effects (Gross & Aday, 2003; Hughes, 1980). Additionally, if the respondent had attended college, he/she would also indicate how many courses he/she had taken in natural science, social science, and technology. These questions were also used in Gerbner et al.’s (1985) study regarding attitudes toward science. Knowledge of the legal field might impact potential responses in this study. Therefore, participants were asked how much coursework they had taken in criminal justice or law. In order to determine if personal experience might factor in to possible cultivation effects, participants were also asked how many juries they participated in (see Appendix M for demographic measures).
Dependent Variable Measures

**Expectations of forensic evidence.** To measure participants’ expectations of forensic evidence, items tested in the pilot study derived from Shelton et al. (2006) were used. Participants were asked to indicate how likely they believe scientific and non-scientific evidence would be presented in four different criminal scenarios: murder, rape, theft, and every criminal case. A total of 11 evidence items were listed for each criminal trial scenario (see Appendix J). Participants were asked “how likely do you think it would be that each of the following types of evidence would be presented in a criminal trial for (insert scenario).” Likelihood responses were measured on a 1-5 Likert-type scale, with 1 being “very unlikely” and 5 being “very likely.”

The scientific evidence measure included the following seven items: DNA evidence, blood analysis, ballistics or other firearms laboratory evidence, fiber or hair analysis, drug or toxicology analysis, print evidence, and a catch-all option of “scientific evidence of some kind.” Non-scientific evidence included two measures from the pretest (eyewitness testimony from the alleged victim and eyewitness testimony from at least one other witness), as well as two new items: “testimony determining motive for the crime” and “testimony establishing alibi or whereabouts of the accused.” These items were intermixed into the scientific evidence to prevent testing effects.

**Infallibility of forensic evidence.** In order to measure a participant’s belief in the infallibility of forensic evidence, the newly developed infallibility measure was utilized (see Appendix K). This measure included seven items: “the only true way to tell if a person committed a crime is through forensic evidence,” “forensic evidence leads to a singular, correct answer,” “every crime can be solved through forensic evidence,”
“forensic evidence is proof of guilt,” “the only true way to tell if a person committed a crime is through forensic evidence,” “interpretation of forensic evidence is not influenced by personal feelings,” “interpretation of forensic evidence is free from bias,” and “forensic investigators can misinterpret scientific evidence” (reverse coded). Participants were asked to indicate how much they agreed with each of the items on a 1 to 5 Likert-type scale (1 = strongly disagree, 5 = strongly agree).

In the pilot test, two constructs emerged for the infallibility measure. Perceived Utility consisted of four items: “the only true way to tell if a person committed a crime is through forensic evidence,” “forensic evidence leads to a singular, correct answer,” “every crime can be solved through forensic evidence,” and “forensic evidence is proof of guilt.” Perceived Objectivity included three items: “interpretation of forensic evidence is not influenced by personal feelings,” “interpretation of forensic evidence is free from bias,” and “forensic investigators can misinterpret scientific evidence (reverse coded).”

For the newly developed 7-item infallibility measure, a factor analysis was conducted to confirm the two-factor structure with the larger and more diverse sample. A principal components factor analysis with varimax rotation was computed for all the items in the measure. Bartlett’s test of sphericity for the infallibility measure revealed a sufficient structure to conduct a factor analysis ($\chi^2(21) = 439.03, p < .001$). In order for an item to be included in the factor, the 60/40 rule was applied. Eigenvalues greater than or equal to 1.0 were necessary for items to be included as a factor.

This analysis revealed two factors; however, the structure was not the same as the pilot test. Factor 1 consisted of six items and accounted for 48.5% of the variance in scores. Factor 2 consisted of one item, “forensic investigators can misinterpret scientific
evidence.” Upon examining the correlation matrix for all seven items, it was clear that this item did not correlate with the other six items. A second principal components factor analysis was conducted on the remaining six items. Again, the 60/40 rule was applied and Eigenvalues greater or equal to one were included as a factor.

This factor analysis revealed a unidimensional measure, as originally expected (but not confirmed) in the pilot test. This factor explained 56.84% of the variance in scores (eigenvalue = 3.41). Table 5 displays the infallibility items and factor loadings for the rotated factor. This measure is reliable, with a Cronbach’s alpha of .85. The scale mean was 2.87 (SD = .77). Hence, it was employed in the data analyses.

Table 5

<table>
<thead>
<tr>
<th>Items (α = .85)</th>
<th>Mean</th>
<th>SD</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every crime can be solved through forensic evidence.</td>
<td>2.74</td>
<td>0.98</td>
<td>.69</td>
</tr>
<tr>
<td>The only true way to tell if a person committed a crime is through forensic evidence</td>
<td>2.56</td>
<td>1.03</td>
<td>.76</td>
</tr>
<tr>
<td>Forensic evidence is proof of guilt.</td>
<td>3.14</td>
<td>1.02</td>
<td>.73</td>
</tr>
<tr>
<td>Forensic evidence leads to a singular, correct answer.</td>
<td>2.76</td>
<td>1.03</td>
<td>.81</td>
</tr>
<tr>
<td>Interpretation of forensic evidence is not influenced by personal feelings.</td>
<td>3.13</td>
<td>1.02</td>
<td>.73</td>
</tr>
<tr>
<td>Interpretation of forensic evidence is free from bias.</td>
<td>2.87</td>
<td>1.04</td>
<td>.80</td>
</tr>
<tr>
<td><strong>Eigenvalue</strong></td>
<td></td>
<td></td>
<td>3.41</td>
</tr>
</tbody>
</table>

*Note. N = 188. Scale items are measured with a 5-point scale, ranging from 1 = strongly disagree to 5 = strongly agree.*

**Orientation toward science.** Based on the pilot study, it was found that previous measures of the orientation toward science were not highly reliable (Bauer et al., 1994; Gerbner et al., 1985; NORC, 2008). Therefore, the three item measure derived from the
pilot study was used to determine participant’s orientation toward science (see Appendix L). Responses were measured on a 1 to 5 Likert-type scale, ranging from strongly disagree to strongly agree. The three items in this measure were: “science makes our lives easier,” “science makes our lives more comfortable,” and “the benefits of science are greater than any harmful effects.”

As with the infallibility measure, a principal components factor analysis with varimax rotation was conducted on these three items. Bartlett’s test of sphericity revealed an adequate structure for factor analysis ($\chi^2(3) = 130.43, p < .001$). This analysis shows that the orientation toward science measures all load on one factor. All items adhered to the 60/40 rule. This factor has an eigenvalue of 1.99 and explains 66.37% of the variance. This measure has an acceptable reliability ($\alpha = .75$).

**Orientation toward scientists and forensic investigators.** Factor analysis performed on data collected in the pilot study had suggested that measures of orientation toward both scientists and forensic investigators were unidimensional. Factor analyses conducted in this study revealed similar results. The 6-item orientation toward scientists measure was unidimensional, explaining 56.39% of the variance (eigenvalue 3.39). All items adhered to the 60/40 rule, with the exception of the item “scientists are not likely to be very religious people (loading of .59). Correlation analysis of these items did not indicate that this item should be thrown out, and the loading in the pretest was acceptable (.65). Therefore, this item was retained in the measure. The reliability for this measure was good ($\alpha = .84$).

For the orientation toward forensic investigators 6-item measure, factor analysis revealed a unidimensional factor. This factor explained 65.99% of the variance in scores
(eigenvalue = 3.96). All items were consistent with the 60/40 factor loading rule. This measure was also reliable, with a Cronbach’s alpha level of .90. The reliability for both the orientation measures are consistent with pretest measures (α = .84 for scientists and α = .91 for forensic investigators).

Participants were asked to rate how much they agree with each item on a 1 to 5 Likert scale, ranging from strongly disagree to strongly agree. Due to the negative wording of the items in both scales, lower means will indicate a more positive attitude toward scientists and forensic investigators. See Appendix L for scale items.
Chapter IV

Primary Study Results

The following discussion presents the results of the primary study. First, descriptive statistics are presented for the independent and dependent variables. Next, the effects of crime drama viewing are presented, followed by overall viewing and program-specific effects on the dependent variables.

Means

For each of the primary variables of interest in this study, means were computed (see Table 6). In this sample, there was a wide range in self-reported overall television viewing (from zero hours to over 100 hours per week). The average number of hours viewed per week was slightly over 22 hours. This is less than the national average (but within the sample standard deviation) reported by Nielsen of 34 hours of average weekly television viewing in 2010 (Stelter, 2011). The average weekly viewing of crime drama programs was 3.2 hours, with the highest score being 36 hours per week.

For participant expectations of forensic evidence, it was found that overall expectations were high throughout each criminal trial scenario. Murder and rape cases had the highest means, yet all of the means were above neutral. Participants’ beliefs in the infallibility of forensic evidence across the sample, however, were slightly less than neutral. This indicates that people did not believe in the infallibility of forensic evidence. As shown in Table 6, participants had a positive attitude toward science, scientists, and forensic investigators. Lower means for the scientists and forensic investigator measures indicate a more positive attitude.
Table 6

*Primary Study Means for Dependent and Independent Variables*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range/Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total weekly television viewing (in hours)</td>
<td>22.36</td>
<td>16.29</td>
<td>(0 to 101.75)</td>
</tr>
<tr>
<td>Weekly crime genre viewership (in hours)</td>
<td>3.20</td>
<td>5.71</td>
<td>(0 to 36)</td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectations of scientific evidence in crimes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Likelihood of evidence in murders</td>
<td>4.38</td>
<td>0.57</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>- Likelihood of evidence in thefts</td>
<td>3.46</td>
<td>0.77</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>- Likelihood of evidence in rapes</td>
<td>4.25</td>
<td>0.56</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>- Likelihood of evidence in every criminal case</td>
<td>3.81</td>
<td>0.89</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>2.87</td>
<td>0.77</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>3.81</td>
<td>0.70</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>2.39</td>
<td>0.73</td>
<td>(1 to 5)</td>
</tr>
<tr>
<td>Orientation toward investigators</td>
<td>2.36</td>
<td>0.74</td>
<td>(1 to 5)</td>
</tr>
</tbody>
</table>

*Note. N = 188. For the expectations of scientific evidence, infallibility of forensic evidence, and orientation toward science measures, a five equals a more positive attitude. Items in both the orientation toward scientists and forensic investigators scales are negatively worded. Therefore, a lower mean indicates a more positive attitude.*

**Effects of Crime Drama Viewing**

**Estimates of Scientific Evidence in Criminal Trials**

Hypothesis one predicted that there would be positive relationships between crime drama viewership and participants’ likelihood estimates of scientific evidence being presented is a) every criminal case, b) murder cases, c) rape cases, and d) any theft case.
To test this hypothesis, correlations between crime drama exposure and the expectations of scientific evidence measure in each of the four criminal scenarios were conducted. Table 7 shows the correlations for these variables. Results showed that hypothesis one was not supported. Weekly crime drama viewership was not significantly related to likelihood estimates for murder, rape, theft, or every criminal case scenario (see Appendix N for full correlation matrix).

**Differences in Criminal Trial Type**

Hypothesis two predicted that the correlation between crime drama exposure and likelihood estimates of scientific evidence to be presented in both murder and rape trials would be greater than the correlation between exposure and evidence expectations in theft cases. As with hypothesis one, this hypothesis was not supported. Crime drama viewing has no impact on viewers’ expectations of scientific evidence in any trial type.

**Infallibility of Forensic Evidence**

The third hypothesis was proposed to examine the role of crime drama viewership on beliefs regarding the infallibility of forensic evidence. It was posited that frequency of crime drama viewing would be positively related to the belief that forensic evidence is infallible. To test this proposition, a correlation analysis was conducted. This hypothesis was not supported. Weekly crime drama viewership fell just short of significance in a two tailed test when correlated with viewers’ beliefs of forensic evidence infallibility, \( r(186) = .14, p = .052 \).

**Orientation toward Science**

Hypothesis four proposed that crime drama viewership would be positively related to participants’ orientation toward science. A correlation analysis was conducted
between crime drama viewing and participants’ scores on the orientation toward science measure. This hypothesis was not supported. Genre viewing was not related to a positive attitude toward science (see Table 7).

Table 7

**Correlations of Crime Drama and Weekly TV Viewing with the Dependent Variables**

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Crime drama viewing</th>
<th>Weekly TV viewing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectations of scientific evidence in crimes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood of evidence in murders</td>
<td>.06</td>
<td>.02</td>
</tr>
<tr>
<td>Likelihood of evidence in thefts</td>
<td>.10</td>
<td>-.01</td>
</tr>
<tr>
<td>Likelihood of evidence in rapes</td>
<td>.06</td>
<td>.01</td>
</tr>
<tr>
<td>Likelihood of evidence in every criminal case</td>
<td>.11</td>
<td>.16*</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>.14</td>
<td>.10</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>.01</td>
<td>-.01</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>.02</td>
<td>.20**</td>
</tr>
<tr>
<td>Orientation toward investigators</td>
<td>.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

*Note. N = 188. Items for the orientation toward scientists and forensic investigators are negatively worded; therefore, positive correlations mean a more negative orientation toward scientists and investigators.*

*p < .05

**p < .01

**Orientation toward Scientists and Forensic Investigators**

Hypothesis five predicted that weekly crime drama viewership would be positively related to participants’ favorable orientation toward a) scientists and b) forensic investigators. Correlation analyses were conducted for crime drama viewing and each of the orientation measures. Results showed that genre viewership was not
significantly related to a favorable orientation toward scientists or toward forensic investigators (see Table 7).

**Effects of Overall Television Viewing**

Because overall television viewing is the primary exposure variable in cultivation theory, RQ1a-d asked what effects this measure might have on the dependent variables in the above hypotheses. Correlation analyses were conducted to determine the relationship between weekly television viewing and scientific evidence expectations, infallibility of forensic evidence beliefs, and the orientations toward science, scientists, and forensic investigators. Appendix O displays the full correlation table for these tests.

Research question 1a asked whether overall television viewing is related to the perceived likelihood of scientific evidence in criminal trials. Table 7 displays the correlations between overall weekly viewing and likelihood estimates for murder, theft, rape, and every criminal case scenarios. From these analyses, the only significant relationship found was for the “every criminal case” scenario. Overall weekly television viewing was positively related to participants’ beliefs that scientific evidence is likely to be presented in every criminal case, \( r(186) = .16, p < .05 \).

In addition to likelihood estimates, research question one examined the impact of overall viewing on infallibility estimates, as well as orientation toward science, scientists, and forensic investigators (see Table 7). Of these variables, total weekly viewing was significantly related to participants’ orientation toward scientists, \( r(186) = .20, p < .01 \). Therefore, people who watch more television have a more negative orientation toward scientists. Overall viewing had no impact on people’s orientation toward science,
orientation toward forensic investigators, and beliefs of the infallibility of forensic evidence.

Comparing Crime Drama Viewing with Overall Television Viewing

According to Potter (1993; 1994), genre viewing is a better measure of television exposure than overall viewing when examining cultivation effects. Therefore, hypothesis 6 proposed that crime drama viewership would be more strongly related to the dependent variables in this study than overall viewing. As Table 7 indicates, this hypothesis was not supported. In fact, the opposite effect was found. Overall weekly television viewing appeared to be a better predictor of cultivation effects than weekly crime drama viewership in two instances. Overall weekly television viewing was significantly related to two dependent variables: likelihood of scientific evidence in every criminal case and orientation toward scientists. Crime drama viewing was not correlated with any of the dependent variables proposed.

Effects of Specific Crime Drama Programs

Research question two was asked to determine if the frequency of viewing specific crime drama programs was correlated with the dependent variables. The mean number of hours spent viewing each crime drama program (and the range) is displayed in Table 8. To examine this research question, zero-order correlations were obtained between weekly viewing of each of the 14 crime drama programs and each dependent variable. Only three significant correlations emerged. First, hours spent per week viewing CSI: Miami was positively related to participants’ likelihood of expecting forensic evidence in every criminal case, \( r(186) = .16, p < .05 \). Second, exposure to Body of Proof
was negatively related to the perceived likelihood of scientific evidence in murder trials and rape cases, \( r(186) = -.19, p < .01 \) and \( r(186) = -.14, p < .05 \), respectively.

Table 8

*Crime Drama Program Means and Ranges in Viewership*

<table>
<thead>
<tr>
<th>Program</th>
<th>Mean # of Hours</th>
<th>SD</th>
<th>Range (in hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law &amp; Order: SVU</td>
<td>.64</td>
<td>1.38</td>
<td>7</td>
</tr>
<tr>
<td>NCIS</td>
<td>.47</td>
<td>1.37</td>
<td>12</td>
</tr>
<tr>
<td>Criminal Minds</td>
<td>.43</td>
<td>1.29</td>
<td>10</td>
</tr>
<tr>
<td>CSI: Miami</td>
<td>.27</td>
<td>1.12</td>
<td>11</td>
</tr>
<tr>
<td>CSI: Las Vegas</td>
<td>.26</td>
<td>0.70</td>
<td>5</td>
</tr>
<tr>
<td>Law &amp; Order Criminal Intent</td>
<td>.25</td>
<td>0.72</td>
<td>4.5</td>
</tr>
<tr>
<td>CSI</td>
<td>.24</td>
<td>0.69</td>
<td>6</td>
</tr>
<tr>
<td>NCIS: Los Angeles</td>
<td>.19</td>
<td>0.64</td>
<td>5</td>
</tr>
<tr>
<td>Bones</td>
<td>.14</td>
<td>0.50</td>
<td>5</td>
</tr>
<tr>
<td>CSI: NY</td>
<td>.12</td>
<td>0.49</td>
<td>4</td>
</tr>
<tr>
<td>Law &amp; Order: Los Angeles</td>
<td>.07</td>
<td>0.35</td>
<td>4</td>
</tr>
<tr>
<td>The Closer</td>
<td>.07</td>
<td>0.42</td>
<td>5</td>
</tr>
<tr>
<td>The Mentalist</td>
<td>.06</td>
<td>0.22</td>
<td>1</td>
</tr>
<tr>
<td>Body of Proof</td>
<td>.002</td>
<td>0.04</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note.* \( N = 188 \). All programs include zero hours as the lowest viewing option.

To further explore the role of specific programming, composite measures were constructed by summing the hours viewed per week for three separate programs: *NCIS*, *Law & Order*, and *CSI*. These programs were chosen because they each include at least one spin-off from the original program. Additionally, *Law & Order: SVU* and *NCIS* were the two top viewed shows in this sample. The *NCIS* composite measure included total weekly viewing for both the original *NCIS* program as well as *NCIS: Los Angeles*. The
Law & Order composite included the following three programs: Law & Order: SVU, Law & Order Criminal Intent, and Law & Order: Los Angeles. The total weekly CSI viewing composite measure included four programs: CSI, CSI: Miami, CSI: Las Vegas, CSI: NY.

Total weekly Law & Order viewing ranged from zero to fourteen hours. NCIS total weekly viewing had a similar range in viewership, with self-reported scores ranging from zero to twelve hours per week. CSI viewing had the highest range in hours, with participants indicating they watched from zero to 15 hours a week. Mean scores for the NCIS and Law & Order were .63 hours (SD = 1.60) and .96 hours (SD = 2.01), respectively. Average CSI viewing was similar to NCIS and Law & Order viewing (M = .89 hours, SD = 2.25).

**Law & Order and NCIS Viewing**

Zero-order correlations were obtained between each dependent variable and the NCIS and Law & Order composite measures. Neither of these programs was correlated significantly with participants’ perceptions of the likelihood of evidence in each of the four trial scenarios, beliefs of the infallibility of forensic evidence, or orientations toward science, scientists, and forensic investigators (see Table 9 for correlations).

**CSI Viewing**

To examine the impact of CSI viewing on the dependent variables, correlations were obtained (see Appendix P for the correlation matrix). The first analysis was conducted with CSI viewing and participants’ beliefs in the likelihood of scientific evidence to be presented in murder, theft, rape, and every criminal cases. This analysis revealed two significant correlations (see Table 9). CSI viewing was positively related to likelihood estimates of scientific evidence in theft cases and every criminal case, \( r(186) = \)
.14, \( p < .05 \) and \( r(186) = .15, p < .05 \), respectively. Murder and rape cases revealed non-significant findings. Therefore, the more participants’ watched \( CSI \) programming, the more likely they were to indicate that scientific evidence would be presented in theft cases and in every criminal case.

Table 9

*Correlations between the Dependent Variables and Hours per Week Viewing \( CSI \), \( NCIS \), and \( Law & Order \)*

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>( CSI )</th>
<th>( NCIS )</th>
<th>Law &amp; Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectations of scientific evidence in crimes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood of evidence in murders</td>
<td>.05</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Likelihood of evidence in thefts</td>
<td>( .14^* )</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Likelihood of evidence in rapes</td>
<td>.03</td>
<td>-.04</td>
<td>.05</td>
</tr>
<tr>
<td>Likelihood of evidence in every criminal case</td>
<td>( .15^* )</td>
<td>.07</td>
<td>.03</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>( .14^* )</td>
<td>.09</td>
<td>.05</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>.01</td>
<td>-.04</td>
<td>.05</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>.05</td>
<td>-.02</td>
<td>.01</td>
</tr>
<tr>
<td>Orientation toward forensic investigators</td>
<td>.00</td>
<td>.01</td>
<td>-.004</td>
</tr>
</tbody>
</table>

*Note. \( N = 188 \). Items for the orientation toward scientists and forensic investigators are negatively worded; therefore, positive correlations mean a more negative orientation toward scientists and investigators. \( *p < .05 \)*

Next, \( CSI \) viewing was correlated with beliefs in the infallibility of forensic evidence. Results showed that \( CSI \) viewing was positively related to beliefs of infallibility (\( r = .14, p < .05 \)). Therefore, participants who were heavier viewers of \( CSI \)
shows were more likely to believe that forensic evidence is a credible, flawless form of evidence.

Lastly, *CSI* viewing was correlated with participants’ orientation toward science, scientists, and forensic investigators. Similar to the findings related weekly crime drama viewing, *CSI* viewing was not related to participants’ attitudes regarding science, scientists, or forensic investigators. Table 9 displays the correlations for each of these tests.

With respect to RQ2, these program-specific correlations show that *CSI* viewing has a unique impact on perceptions related to scientific evidence expectations and the belief in the infallibility of forensic evidence. As noted earlier, *CSI: Miami* was the only specific crime drama program to correlate significantly with any of the dependent variables in the expected direction. Participants who watched this program more were more likely to expect forensic evidence in every criminal case. The only other individual program that produced significant results was the program *Body of Proof*. This show, however, was negatively related to the likelihood of scientific evidence to be presented in murder and rape cases. Composite measures for two other popular crime drama franchises, *NCIS* and *Law & Order*, did not produce any significant results when correlated with the dependent variables. However, the composite *CSI* weekly viewing was positively related to expectations of scientific evidence in thefts and in every criminal case, as well as for beliefs in infallibility.

**Effects of Demographic Variables**

Research question three asked how controlling for the effects of demographic variables would affect the relationship between crime drama viewing and participants’ a)
likelihood estimates of forensic evidence in each of four criminal trials, b) beliefs in the infallibility of forensic evidence, c) positive orientation toward science, and d) positive orientation toward scientists and forensic investigators. The demographic measures included in this study were sex (categorical: 0 = male, 1 = female), age (continuous, in years), and the highest level of education achieved (continuous). Responses for the highest level of education achieved were measured as an index from 1 to 8 corresponding with the following categories: less than high school, some high school, high school degree/GED, some college/university, Associate’s degree, Bachelor’s degree, Master’s degree, and Doctoral degree.

Two additional demographic variables were proposed but not included in the analyses: total science coursework and ethnicity. Coursework was measured by asking participants how many college courses they had taken in law, computer science, natural science, and social science. The number of courses was then summed to form a total measure of relevant scientific coursework. Zero-order correlations were conducted between the scientific coursework measure and each of the dependent variables. Coursework was not significantly related to perceptions of scientific evidence in each of the four criminal trials, belief in the infallibility of forensic evidence, or the orientations toward science, scientists, and forensic investigators. Coursework was also unrelated to weekly crime drama viewing. Correlation analyses for the specific types of coursework (law, natural science, social science, and computer science) and the dependent variables also revealed non-significant results. Therefore, this measure was not included in the regression analyses employed to answer RQ3.
For the ethnicity measure, participants were given five ethnic categories to choose from, including an open-ended “other” option: Caucasian, African American, Hispanic/Latin, Asian/Pacific Islander, and American Indian. A one-way ANOVA was conducted with ethnicity as the independent variable separately for each dependent variable. The means of the dependent variables did not vary significantly on the ethnicity categories, except for the infallibility of forensic evidence measure. Based on these results, ethnicity was excluded from the regression analyses.

To answer RQ3, linear regression analyses were conducted separately for each dependent variable. In each analysis, the dependent variable was regressed onto the three demographic variables and hours spent viewing crime drama in the average week. The predictor variables were entered simultaneously. The results of these tests are presented below (see Table 10).

**Likelihood of Scientific Evidence in Criminal Trials**

Research question 3a asked whether weekly crime drama viewership predicts likelihood estimates of forensic evidence in murder, rape, theft, and every criminal trial scenarios when demographics are held constant. This was not observed in any of the four trial scenarios.

Genre viewing, age, sex, and education collectively explained 4% of the variance in participants’ perceptions of forensic evidence in murder cases, $F(4,178) = 2.88, p < .05$. Both sex ($\beta = .19, p < .05$) and age ($\beta = .20, p < .05$) emerged as significant

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Whereas participants’ mean scores did vary across infallibility perceptions for the different ethnic groups, $F(5, 182) = 2.32, p = .045$, the significant effect appeared to be due to the fact that average perceptions of infallibility were somewhat higher for American Indians and Hispanic/Latin participants. As the number of participants in each of these groups ($n = 4$ and $n = 2$, respectively) was small given the sample size ($N = 188$), this difference is not considered meaningful. Therefore, ethnicity was excluded from the regression analyses. Excluding ethnicity from the regression analyses also provided the advantage of making the results more comparable across all dependent variables.
Table 10

*Multiple Regression Analyses Showing the Effect of Crime Drama Viewing on the Dependent Variables with Demographic Variables Held Constant*

<table>
<thead>
<tr>
<th></th>
<th>LSE Murder</th>
<th>LSE Theft</th>
<th>LSE Rape</th>
<th>LSE Every case</th>
<th>Infallibility forensic evidence</th>
<th>Orientation science</th>
<th>Orientation scientists</th>
<th>Orientation investigators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime Drama Viewing</td>
<td>.02</td>
<td>.09</td>
<td>.03</td>
<td>.10</td>
<td>.15*</td>
<td>.03</td>
<td>.05</td>
<td>.02</td>
</tr>
<tr>
<td>Sex</td>
<td>.19*</td>
<td>.11</td>
<td>.15*</td>
<td>.06</td>
<td>.01</td>
<td>-.17*</td>
<td>-.07</td>
<td>-.05</td>
</tr>
<tr>
<td>Age</td>
<td>.20*</td>
<td>.19*</td>
<td>.19*</td>
<td>-.09</td>
<td>-.01</td>
<td>.03</td>
<td>-.03</td>
<td>-.05</td>
</tr>
<tr>
<td>Education</td>
<td>-.11</td>
<td>-.11</td>
<td>-.11</td>
<td>-.11</td>
<td>-.22*</td>
<td>.11</td>
<td>-.01</td>
<td>-.01</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.04*</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
<td>.05**</td>
<td>.03</td>
<td>.01</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Note. N = 188. All beta weights are standardized. LSE = Likelihood of Scientific Evidence. Each dependent variable shown in the column was regressed separately onto the four predictor variables.*

*p < .05

**p < .01
predictors of perceptions of evidence in murder cases. Females and older participants were more likely to believe that scientific evidence should be presented in murder cases.

The variance explained by the four predictors as a set approached significance for the other three criminal case scenarios: rape cases, $F(4,178) = 2.32, p = .058$, theft cases, $F(4,178) = 2.34, p = .057$, and every criminal case, $F(4,178) = 2.23, p = .07$. Despite the fact that the $R^2$s fell short of significance, some beta coefficients were significant for the dependent variables likelihood of scientific evidence in rape and in theft cases. Specifically, women were more likely to believe scientific evidence would be presented in rape cases, $\beta = .15, p < .05$. Additionally, older people were more likely to believe that scientific evidence should be presented in rape ($\beta = .19, p < .05$) and theft ($\beta = .19, p < .05$) cases. Table 10 displays the standardized beta weights for each test.

**Infallibility of Forensic Evidence**

Research question 3b asked whether crime drama viewing predicts participants’ beliefs in the infallibility of forensic evidence when demographics are controlled for. This was found to be the case. The regression results showed that the combined effect of genre viewing, age, sex, and education level explained significant variance in participants’ belief that forensic evidence was infallible, $F(4,178) = 3.60, p = .01$. Five percent of the variance in infallibility estimates is predicted by the combination of these variables. Crime drama viewing ($\beta = .15, p < .05$) and education ($\beta = -.22, p < .05$) each significantly predicted forensic evidence infallibility beliefs. Participants who had less education and watched more crime drama television per week were more likely to believe forensic evidence is infallible.
Orientation toward Science, Scientists, and Forensic Investigators

Research questions 3c asked whether crime drama viewership would predict participants’ attitudes toward science, controlling for demographics. This was not observed. Although the combined effect of age, gender, education and crime drama viewing on participants’ orientation toward science fell short of significance, \( F(4,178) = 2.40, p = .052 \), sex (\( \beta = -.17, p < .05 \)) emerged as a significant predictor of orientation toward science scores, with men having a more positive attitude (Table 10).

Lastly, research question 3d asked whether crime drama viewing would predict orientation toward scientists and forensic investigators with demographics held constant. This was not found. Participants’ orientation toward scientists was not significantly predicted by crime drama viewing and no demographic variable was significant. Additionally, when holding demographic variables constant, crime drama viewing did not predict participants’ orientation toward forensic investigators – nor was any demographic variable significant.

Post Hoc Analyses

Traditionally, cultivation researchers have utilized viewing groups to make comparisons between heavy and light viewers (Gerbner et al., 1980; 1986; Shanahan & Morgan, 1999). Typically, participants are asked about their television viewing behavior in hours and then the sample is divided into groups. Some studies utilize a median split (Hestroni, 2010; Lee, Bichard, Irey, Walt, & Carlson, 2009; Northrup, 2010), whereas other studies split the participants into three or more groups (Dalstrom & Scheufele, 2010; Hestroni & Tuckachinksy, 2006; Shanahan & Morgan, 1999). However, as indicated by Shanahan and Morgan (1999), “the methods used to assess television
viewing are less important than the fact that one can realistically distinguish between relative levels of viewing” (p. 25). In order to further explore the role of television viewing on the dependent variables, post hoc analyses were conducted.

For the overall television viewing measure, traditional cultivation procedures for compiling heavy and light viewers was used (Gerbner et al., 1985; Northup, 2010). A median split of the data produced even categories of heavy to light viewers. In this sample, 19 hours was the median. Fifty percent of the sample consisted of light viewers (0-19 hours of TV per week) and 50% of the sample consisted of heavy viewers (19 or more hours per week).

Given the restriction in range for both genre and program-specific measures, a median split was not used to divide the sample into heavy and light categories. Using techniques from Lee et al. (2009), frequency distributions of weekly viewing hours were compiled for crime drama viewership and CSI viewing. Each category was then split at the midpoint of viewing hours recorded to produce a light viewing category and a heavy viewing category.

For example, there were 32 responses given for crime drama viewing ranging from zero to 36 (non-continuously). The number at the midpoint was 8 hours. If a median split of the data were to be used, the median would be one hour of crime drama per week. While the median split would give a more equal balance in the sample, it does not make intuitive sense to state that more than one hour a week is considered “heavy viewing.” Using Lee et al.’s technique, the sample distribution for crime drama viewing was 87.8% light viewers and 12.2% heavy viewers. Nearly 42% of the sample consisted of non-viewers. While a small proportion of the sample fits into the heavy viewing category,
eight hours is consistent with previous genre research that allows for viewing ranges up to 9 or more hours per week per genre category (Lee et al., 2009).

Table 11

Comparison of Heavy and Light Viewers of Total Weekly Television (Independent samples t tests)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Heavy viewer</th>
<th>Light viewer</th>
<th>t(186)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>LSE – Murder trial</td>
<td>4.39</td>
<td>0.54</td>
<td>4.36</td>
</tr>
<tr>
<td>LSE – Theft trial</td>
<td>3.47</td>
<td>0.77</td>
<td>3.46</td>
</tr>
<tr>
<td>LSE – Rape trial</td>
<td>4.23</td>
<td>0.57</td>
<td>4.27</td>
</tr>
<tr>
<td>LSE – Every criminal case</td>
<td>3.89</td>
<td>0.84</td>
<td>3.72</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>2.93</td>
<td>0.75</td>
<td>2.80</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>3.83</td>
<td>0.54</td>
<td>3.78</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>2.50</td>
<td>0.65</td>
<td>2.27</td>
</tr>
<tr>
<td>Orientation toward forensic investigators</td>
<td>2.37</td>
<td>0.67</td>
<td>2.34</td>
</tr>
</tbody>
</table>

*Note. For heavy viewers, n = 94. For light viewers, n = 94. LSE = Likelihood of scientific evidence. Means are computed on a 5 point scale. For all measures except the orientation toward scientists and forensic investigator measures, a larger mean equals a more positive attitude. *p < .05

For CSI viewing, the same technique used for crime drama viewership was employed. Frequency listings of reported weekly composite CSI viewing hours resulted in 16 total numbers, ranging from zero to 15 hours. The median hour in this sample was 3.5 hours. Therefore, light viewers consisted of those who watched less than 3.5 hours of CSI per week (93.6% of the sample) and heavy viewers watched 4 hours or more. In this
sample, a large proportion of people watched zero hours of CSI programs per week (70.7%).

To compare light and heavy viewers of overall weekly television viewing on each of the dependent measures, independent samples t-tests were conducted. Results from these analyses are displayed in Table 11. In this sample, the only significant difference between heavy and light television viewers on the dependent variables was for the orientation toward scientists measure. Heavy viewers of overall television \((M = 2.50, SD = .65)\) had a more negative attitude toward scientists than light viewers \((M = 2.27, SD = .78)\), \(t(186) = -2.18, p<.05\).

Table 12

**Comparison of Heavy and Light Viewers of Crime Drama (Independent samples t tests)**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Heavy viewer</th>
<th>Light viewer</th>
<th>(t(186))</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSE – Murder trial</td>
<td>4.48</td>
<td>4.36</td>
<td>-0.91</td>
</tr>
<tr>
<td>LSE – Theft trial</td>
<td>3.72</td>
<td>3.43</td>
<td>-1.69</td>
</tr>
<tr>
<td>LSE – Rape trial</td>
<td>4.35</td>
<td>4.23</td>
<td>-0.90</td>
</tr>
<tr>
<td>LSE – Every criminal case</td>
<td>4.12</td>
<td>3.76</td>
<td>-1.79</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>3.20</td>
<td>2.82</td>
<td>-2.24*</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>3.77</td>
<td>3.81</td>
<td>.23</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>2.38</td>
<td>2.39</td>
<td>.05</td>
</tr>
<tr>
<td>Orientation toward forensic investigators</td>
<td>2.34</td>
<td>2.36</td>
<td>.10</td>
</tr>
</tbody>
</table>

*Note. For heavy viewers, \(n = 166\). For light viewers, \(n = 22\). LSE = Likelihood of scientific evidence. Means are computed on a 5 point scale. For all measures except the orientation toward scientists and forensic investigator measures, a larger mean equals a more positive attitude. *\(p < .05\)
For weekly crime drama viewing, independent samples t-tests were conducted to compare heavy versus light viewing on each of the dependent variables. As shown in Table 12, only one significant difference in mean scores was found. Heavy viewers of crime drama programming ($M = 3.20, SD = .83$) were likely to believe that forensic evidence was infallible more so than light viewers ($M = 2.82, SD = .75$), $t(186) = -2.24, p<.05$.

Table 13

*Comparison of Heavy and Light Viewers of CSI (Independent samples t tests)*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Heavy viewer</th>
<th>Light viewer</th>
<th>$t$ (186)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>LSE – Murder trial</td>
<td>4.50</td>
<td>0.69</td>
<td>4.37</td>
</tr>
<tr>
<td>LSE – Theft trial</td>
<td>3.86</td>
<td>0.91</td>
<td>3.44</td>
</tr>
<tr>
<td>LSE – Rape trial</td>
<td>4.29</td>
<td>0.68</td>
<td>4.25</td>
</tr>
<tr>
<td>LSE – Every criminal case</td>
<td>4.24</td>
<td>0.67</td>
<td>3.78</td>
</tr>
<tr>
<td>Infallibility of forensic evidence</td>
<td>3.31</td>
<td>0.72</td>
<td>2.84</td>
</tr>
<tr>
<td>Orientation toward science</td>
<td>3.75</td>
<td>0.47</td>
<td>3.81</td>
</tr>
<tr>
<td>Orientation toward scientists</td>
<td>2.56</td>
<td>0.78</td>
<td>2.38</td>
</tr>
<tr>
<td>Orientation toward forensic investigators</td>
<td>2.31</td>
<td>0.61</td>
<td>2.36</td>
</tr>
</tbody>
</table>

*Note.* For heavy viewers, $n = 176$. For light viewers, $n = 12$. *LSE* = Likelihood of scientific evidence. Means are computed on a 5 point scale. For all measures except the orientation toward scientists and forensic investigator measures, a larger mean equals a more positive attitude.

*For heavy viewers, $n = 176$. For light viewers, $n = 12$. LSE = Likelihood of scientific evidence. Means are computed on a 5 point scale. For all measures except the orientation toward scientists and forensic investigator measures, a larger mean equals a more positive attitude.*

Lastly, post hoc analyses were conducted for weekly *CSI* viewing. Independent samples t-tests were conducted between heavy and light viewers on each of the dependent variables (see Table 13). As with crime drama viewership, heavy *CSI* viewers
(\(M = 3.31, SD = .72\)) were more likely to believe that forensic evidence was infallible than light viewers (\(M = 2.84, SD = .76\)), \(t(186) = -2.07, p < .05\).

In sum, the post hoc analyses of traditional cultivation theory comparisons of heavy versus light viewers produced some significant findings. Heavy overall viewing was found to be related to negative orientations toward scientists. Additionally, heavy viewers of both crime drama and CSI viewing were more likely to believe in the infallibility of forensic evidence.
Chapter V

Discussion

The purpose of this study was to examine the possible connection between crime drama viewership and the perceived likelihood of scientific evidence in various criminal trials, perceptions of the infallibility of forensic evidence, and perceptions of science, scientists and forensic investigators. Previous researchers have labeled the effect of exposure to crime drama, especially shows involving the use of forensic evidence, on perceptions such as these as the “CSI effect” (Podlas, 2006; 2009; Shelton et al., 2006; Tyler, 2006). In order to study these possible effects, cultivation theory was applied (Gerbner & Gross, 1976; Gerbner et al., 1978; 1980, 1986).

Cultivation theory proposes that heavier viewers should be more affected by the television view of the world more so than lighter viewers. Second-order cultivation effects occur when heavy viewers subscribe to the television world-view related to attitudinal or belief measures. Therefore, this theory is appropriate to apply to viewer perceptions related to second-order judgments of forensic evidence and science.

Relationships were examined between television exposure and viewers’ expectations of scientific evidence in four criminal case scenarios, beliefs about the infallibility of forensic evidence, and perceptions of science, scientists, and forensic investigators. Lastly, the impact of demographics was included to determine possible effects. The following discussion includes a summary and implications of the study results, a description of limitations, and a proposal for future research directions.
Summary and Implications

Expectations of Scientific Evidence

In order to determine participants’ perceptions related to scientific evidence in criminal trials, four crime scenarios were presented: murder, rape, theft, and every criminal case. Participants then indicated how likely they believed types of evidence would be presented during these trials. Television exposure measures were then analyzed to determine the relationships between television viewing and participants’ expectations of scientific evidence in each of the four criminal case scenarios. It was proposed that people who were heavy viewers of crime dramas would be more likely to expect scientific evidence in each of the criminal trial scenarios. Due to the fact that crime dramas often center their shows on rapes and murders, it was also proposed that the perceived expectation of evidence would be higher for these types of cases.

The correlations showed that total weekly crime drama viewing had no impact on expectations of scientific evidence in any criminal trial scenario. While more recent cultivation researchers have argued that genre may be a better measure of cultivation effects than overall television viewing (Appel, 2008; Potter, 1993; 1994; Segrin & Nabi, 2002), this research does not support that notion with regard to evidence expectations. This could be due to the nature of the genre itself. Cultivation theory states that mainstream concepts portrayed in the media will cultivate heavy viewers’ social reality judgments. While all the shows in the sample include a forensic component, some shows put forensic science in the foreground more so than other programs. Given the variety in storylines between crime drama shows, there may not be a mainstream ideal that is projected regarding forensic evidence use.
Another possible reason for a lack of findings could be that participants’ estimates of forensic evidence across the four criminal types were fairly high, leading to a restricted range of scores on some of these variables. Murder and rape cases produced the highest sample mean, with scores of 4.38 ($SD = .57$) and 4.25 ($SD = .56$), respectively (with 5 being the highest). For the theft and every criminal case scenarios, the means indicated that participants’ believed scientific evidence was likely to be presented ($M = 3.46$, $SD = .77$ and $M = 3.81$, $SD = .89$, respectively). Overall weekly genre viewing may not be a driving factor in how people make judgments about forensic evidence in criminal trials. Participants already had a high expectation for forensic evidence, and television may not be the most important driving force behind those beliefs.

While overall weekly crime drama viewing did not produce significant findings, program specific analyses did. Taken individually, *CSI: Miami* was positively related to participants’ likelihood of expecting forensic evidence in every criminal case and *Body of Proof* was negatively related to the likelihood of scientific evidence to be presented in murder and rape cases. While the *CSI* program’s correlation in the predicted direction, *Body of Proof*’s was not. This could be due to the fact that *Body of Proof* was a fairly new show at the time of data collection and was the least viewed of all the crime drama programs. Therefore, the individuals who watched *Body of Proof* may have been savvy television viewers. However, it is also possible that *Body of Proof* is a unique crime drama program. The focus is more on medical examination to solve crimes – viewers may not associate medical examination with forensic science.

While two individual programs did produce significant results, it was useful to determine the overall effect of *CSI* viewing. All four *CSI* shows currently running were
summed to create a composite variable representing hours per week watching any CSI program. When correlating the composite measure of CSI viewing with expectations for scientific evidence judgments in each of the four scenarios, significant positive relationships emerged for both theft and every criminal case scenario. These results are interesting in that one does not always expect scientific evidence to be relevant in theft cases or in every criminal case.

**Infallibility of Forensic Evidence**

One of the primary concerns surrounding the CSI effect is the belief that forensic science is a foolproof means of discovering truth. To examine this concept, viewing measures were correlated with participants’ self-reported scores on the infallibility scale. Neither crime drama viewership nor overall television viewing was found to significantly impact infallibility scores, though the affect of crime drama viewing approached significance ($p = .052$). However, when controlling for demographics, weekly crime drama viewing was a significant positive predictor of infallibility beliefs. Those participants that watched more crime drama programming, as well as those who were less educated, were more likely to believe that forensic evidence is a full-proof, bias-free form of evidence.

Although the results are not independent of the correlation analyses, post hoc comparisons of t-test analyses for heavy and light viewers of crime dramas also produced significant findings. People who view eight or more hours of crime dramas per week were more likely to believe that forensic evidence was infallible. There was no difference in infallibility mean scores between heavy and light overall television viewing.
These results partially support the notion that genre is a better exposure measure than overall viewing in this particular type of cultivation effect. Although neither exposure measure correlated with infallibility, when controlling for demographics a significant relationship emerged. Also, when using a dichotomous comparison of heavy to light genre viewing, results were in the expected theoretical direction. It is possible that the correlational analyses did not produce significant results due to the restriction in range of the sample. Many people did not watch any crime dramas and overall the sample consisted of a large portion of light viewers. Yet, heavy viewers in the sample did have higher scores on the infallibility scale than lighter viewers.

When examining program specific effects, correlational analyses showed that weekly *CSI* viewing was positively related to the belief in the infallibility of forensic evidence. Though not independent of the correlational data, t-tests showed that heavy weekly *CSI* viewers were significantly more likely than light viewers to believe that forensic evidence is infallible. It is important to note the unique impact of *CSI* when compared to two other crime drama franchises: *NCIS* and *Law & Order*. These shows focus on criminal investigation and include some forensic components in their programming. However, neither of these programs had significant correlations with infallibility beliefs. This could be due to the subtle or absent theme that forensic evidence is a bias free, error-proof form of evidence. These results suggest that *CSI* programs may be cultivating unrealistic expectations for forensic evidence, more so than other types of crime drama television.

Additionally, these findings may have implications for one of cultivation theory’s assumptions. Program-specific viewing is often disregarded in cultivation research as
being too narrow in scope. The theory postulates that mainstream currents exist throughout the television airwaves. However, the results of this study show that program specific “mainstream” themes may still result in effects regarding evidence expectations and beliefs regarding forensic science. Content analyses of *CSI* have shown that characters will often specifically state that the “evidence doesn’t lie” (Gever, 2005; Kruse, 2010; Nolan, 2006). The program description confirms this theme:

> “*CSI*: Crime Scene Investigation is a fast-paced drama about a team of forensic investigators trained to solve crimes by examining the evidence. They are on the case 24/7, scouring the scene, collecting the irrefutable evidence and finding the missing pieces that will solve the mystery” (CBS.com, 2011).

Being that *CSI* focuses primarily on how evidence solves the crime, it is logical that heavier *CSI* viewers will be more aware of scientific evidence and its ability to objectively solve a crime. As the television audience becomes more fragmented, it is possible that program-specific (or program franchise specific, such as *CSI*) measures will be relevant in cultivation research.

**Attitudes toward Science, Scientists, and Forensic Investigators**

The last component of the *CSI* effect that was investigated concerned attitudes toward science. Gerbner et al. (1984) found that heavy viewers were more likely to have a negative attitude toward science. Because this research was conducted over thirty years ago, it was possible that the mainstream view of science might have changed. Given the reliance on science and the scientific method on crime drama programs, one would expect heavy viewers to have a more positive attitude. This assumption, however, proved to be false. None of the viewing measures (overall television, crime drama viewing, or
CSI viewing) impacted attitudes toward science. However, overall, the sample viewed science positively.

This result could be due to a few factors. One, the measure of science was fairly simplistic. It included three items that measured a very general attitude toward science. Previous measures of the Orientation toward Science had modest to low reliabilities. After pretesting, the three item measure was deemed as the most reliable and valid with regards to Gerbner’s original measure. However, it is likely that one’s attitude toward science is multifaceted and based on several judgments.

Another possible reason for this result is that television viewing has no relationship to a person’s attitude toward science. People learn about science through many media; television may not be the most important source when forming attitudes. One source that may be of more importance is education. In this study, zero-order correlations showed that education was positively correlated with orientation toward science, \( r(186) = .15, p < .05 \). The sample was also highly educated overall, and therefore they were much more likely to be exposed to science and the scientific method than less educated people.

In addition to overall orientation toward science, it was also proposed that crime drama viewing would lead to a more positive attitude toward scientists and forensic investigators. Neither orientations toward scientists or forensic investigators was found to be related to crime drama viewership. However, for overall television viewing, it was found that the more people watch television, the more negatively they perceived scientists to be. T-test comparisons also showed that heavy viewers of overall television were also more likely to have a negative attitude toward scientists than light viewers.
These results support Gerbner et al.’s (1985) findings that overall television viewing was related to a negative attitude toward scientists.

While recent research has pointed to a more positive attitude toward scientists (Long & Steinke, 1996), it is possible that Gerbner et al.’s (1985) mainstream message of the “mad scientist” is more a more predominant theme across the television landscape than originally thought. As with the science measure, however, it is possible that one’s attitude toward scientists is multifaceted. The scale proposed by Gerbner used negatively worded items that may not have encompassed an overall attitude.

When analyzing forensic investigators specifically, no significant findings resulted. It is possible that there is no mainstream attitude that is projected regarding forensic investigators. Some shows may depict investigators as fun and cool, while others may be shown as boring loners. The orientation toward scientists measure may not translate well to this profession.

**The Impact of Demographics**

Cultivation research has often been criticized because it does not take into account the confounding influence of demographic variables on observed differences between heavy and light viewers (Hirsch, 1981a, 1981b; Potter, 1993, 1994; Rubin et al., 1988). This study presented regression analyses to determine whether weekly crime drama viewing predicts the dependent variables when the effects of age, sex, and education are controlled for. Crime drama viewing emerged as a significant predictor using demographic controls for one dependent variable: the infallibility of forensic evidence measure. Participants who watched more crime dramas and were less educated were more likely to believe that forensic evidence was infallible. This result makes sense, in
that educated people are more likely to understand forensic science, and would therefore understand that it is not foolproof. It is important to see that the impact of crime drama viewing did not diminish when controlling for demographic variables. This result shows that crime drama in general can have an impact on people’s opinions regarding the infallibility of forensic evidence.

Although crime drama viewing did not emerge as a predictor for the other dependent variables, some demographic variables were found to be significant. Women were more likely to believe that scientific evidence would be presented in criminal trials for rape and murder, whereas men were more likely to have a positive orientation toward science. Older participants were more likely to believe that scientific evidence would be likely in murder, theft, and rape cases.

These results show that demographic variables are often related significantly to variables of interest in cultivation research. Age, sex, and education were each found to be relevant with regards to the dependent variables. Therefore, this study found that including demographic variables in cultivation analyses is warranted and should be included in future studies on the CSI effect.

**Limitations and Directions for Future Research**

While this study produced a number of interesting findings with implications for the effects of crime drama viewing and the CSI effect, it is not without limitations. One limitation of this study is that it cannot be generalized to the greater population. This was a convenience sample that mostly consisted of college undergraduates. An attempt was made to gain a more diverse sample by using a snowball technique. This technique did result in a wider variety in age. However, less variability was achieved in regard to
education level and ethnicity. One limitation of a snowball sample stemming from college students is that there is a high likelihood that their friends and relatives are also more likely to be educated. Future research should attempt to reach beyond the college sample to gain a more representative sample. One way to obtain a representative sample could be to survey jurors after a trial to determine possible CSI effects.

With regards to the applicability of this research in real world contexts, care should be taken in making overarching statements regarding the CSI effect. The effect sizes for television viewing on the dependent variables in this study were fairly small – explaining about two to four percent of the variance in scores. Research has shown that jurors base their decision-making on several factors (Krauss & Sales, 2001; Pennington & Hastie, 1992; Visher, 1987). Television viewing, CSI in particular, might play a small role in potential jurors’ decisions. However small that role might be, it can still have an impact.

As shown in this research, demographic variables have an impact on judgments of forensic evidence in criminal trials and perceptions of evidence infallibility. Yet, when controlling for demographics, crime drama viewership remained a significant positive predictor of perceptions of the infallibility of forensic evidence. Future studies should attempt to further explain the relationship between television viewing and jurors’ perceptions of forensic evidence in criminal trials.

Additionally, care should be taken when making that assumption that CSI viewing distorts reality. While it was not the purpose of this study to determine the extent to which the content of shows like CSI differ from “real world” statistics, future research
should expand upon this area. Content analyses coupled with real courtroom statistics might be a fruitful avenue of exploration.

An additional limitation of this study surrounds the nature of correlational research. Causality cannot be inferred from this survey design. It is possible that people who already believe that scientific evidence is prevalent and infallible are drawn to watching programs like *CSI*. However, correlational results were found between weekly *CSI* viewing and evidence perceptions in thefts and every criminal case, as well as the belief in the infallibility of forensic evidence. Future research in this area may benefit from a variety of research techniques. Building upon legal researchers’ use of criminal scenarios (Lieberman et al., 2008; Podlas, 2006; 2009; Shelton et al., 2006), experimental research could be used to further explicate the relationship between television viewing and juror decision making regarding forensic science.

The current study found that overall television viewing was positively related to perceptions of forensic evidence in the every criminal case scenario. Genre viewing, however, did not produce similar findings. A limitation that might explain this result would be the exclusion of reality-based programming such as the news or news magazine programs as an additional exposure measure. This study only included scripted, fiction based crime programming. If viewers are gleaning attitudes projected through the overall television mainstream message, yet they are not relating those attitudes to crime dramas, other genres of television may be communicating these perceptions. Future research should examine the role of non-fiction crime programming with respect to forensic science attitudes.
An additional explanation regarding the lack of genre findings could be attributed to the sample. In this sample, a large proportion of participants viewed little to no crime drama programs each week. This could explain why crime drama viewing did not produce mainstreaming effects as expected. There were not enough heavy viewers in the sample to produce enough variability in scores to result in significant correlations. Because there were so many non-viewers and not as many heavy viewers, restrictions in range for crime drama viewing may also have contributed to a lack of significant findings. When making comparisons between heavy and light viewers, crime drama viewership produced significant findings for infallibility of forensic evidence beliefs. Yet, this percentage of the sample that was considered heavy viewers was small. These results point to a possible genre effect; however, future research is needed to support this assumption. Obtaining participants from fan sites of CSI and other crime drama programming websites might help in producing a more diverse sample with regard to genre viewing behaviors.

Another limitation of this study surrounds the orientation toward science measure. While this measure had acceptable reliability, content validity may be an issue. One’s orientation toward science may be multifaceted and not solely encompassed by the three items utilized in this measure. Thus, care should be taken in stating that television viewing has no impact on this attitude. We are currently in the information age where technology and science are emphasized. Further research using differing measures of attitudes toward science should be explored.

Lastly, future studies could address more of the limitations surrounding cultivation theory. This study sought to explore the issue of exposure by comparing genre
viewing to overall television viewing. However, other criticisms have been proposed regarding cultivation theory (Hirsch, 1981a, 1981b; Potter, 1993, 1994; Rubin et al., 1988; Shanahan & Morgan, 1999). According to Shanahan and Morgan (1999), complex social variables often have many driving causes. The researchers assert that television viewing is a “social condition” that is not in isolation from other social variables. Future research could ask how variables such as viewer activity and perceived reality act in conjunction with various exposure measures to influence the cultivation of viewers’ perceptions related to forensic evidence.

Overall, this study suggests that the effects of viewing CSI programs in particular deserve the attention of both legal and media effects scholars. This study expands literature on cultivation theory by examining the relatively unexplored area of expectations and perceptions of forensic evidence in criminal trials. Additionally, this study shows promise for future examination of program-specific cultivation effects. The current results show that CSI is unique in relation to other crime drama programs.

Regarding evidence beliefs, correlational analyses showed CSI viewing was positively related to the belief that forensic science is infallible. When controlling for demographics, crime drama viewing was shown to predict infallibility beliefs. Independent t-tests also showed that heavy viewers of CSI and crime drama programs were more likely than light viewers to believe in the infallibility of forensic evidence. These results suggest that infallibility might be an important variable to study with regards to cultivation and forensic evidence. Future research should continue to explore this variable with respect to the CSI effect.
As crime dramas and the *CSI* franchise continue to hold a stake in the television lineup, viewers are exposed to ideas about criminal investigation and trials. While television may not be the sole source of people’s perceptions related to forensic evidence and science, this study shows that television viewing (*CSI* in particular) does have an impact. Clearly, there is a need to continue research on juror perceptions in relation to television viewing.
APPENDIXES
Appendix A

PILOT TEST INSTRUMENT: Total Television Viewing Measure

**Total television viewing**
For the following, please indicate how many hours of television you watch during each of the time periods listed. (Choices are listed in 15 minute intervals, on a drop-down menu)

During the average **weekday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

During the average **Saturday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

During the average **Sunday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

Screenshot from the survey:

```markdown
For the following, please indicate how many hours of television you watch during each of the time periods listed.

During the average **weekday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.
```
Appendix B

PILOT TEST INSTRUMENT: Crime Drama Viewership

Screenshot from the survey:

<table>
<thead>
<tr>
<th>Program</th>
<th>Never Watch</th>
<th>Rarely Watch</th>
<th>Seldom Watch</th>
<th>Sometimes Watch</th>
<th>Often Watch</th>
<th>Regularly Watch</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Closer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI: Miami</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Minds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI: NY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law &amp; Order: Criminal Intent</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Cold Case</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Law &amp; Order: SVU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Mentalist</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numb3rs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark Blue</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without a Trace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Crime Program (Specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

PILOT TEST INSTRUMENT: Expectations of Forensic Evidence

Expectations of Forensic Evidence
For each type of crime, indicate how likely you feel each type of evidence would be presented in a criminal trial. Responses for the evidence types range from 1 (very unlikely) to 5 (very likely)

Scenarios:
- Every criminal case
- Murder or attempted murder
- Rape or other criminal sexual conduct
- Any theft case

Types of non-scientific evidence:
- Eyewitness testimony from the alleged victim
- Eyewitness testimony from at least one other witness

Types of scientific evidence:
- Scientific evidence of some kind
- DNA evidence
- Print evidence (fingerprint, shoeprint)
- Ballistics or other firearms laboratory evidence
- Drug/Toxicology analysis
- Blood analysis
- Fiber/hair analysis

Screenshot from survey:
Appendix D

PILOT TEST INSTRUMENT: Infallibility of Forensic Evidence

Screenshot from survey:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic science is incapable of error.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Forensic investigators can misinterpret scientific evidence.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Forensic evidence of guilt exists in every crime.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Interpretation of forensic evidence is free from bias.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Forensic evidence can lead to the conviction of an innocent person.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Interpretation of forensic evidence is not influenced by personal feelings.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>DNA evidence can lead to different interpretations.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Every crime can be solved through forensic evidence.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Forensic evidence is proof of guilt.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Forensic evidence leads to a singular, correct answer.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Confessions are unnecessary when there is forensic evidence linking a person to a crime.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Crime scene evidence is not always accurate.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>The only true way to tell if a person committed a crime is through forensic evidence.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Scientific evidence doesn't lie.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
Appendix E

PILOT TEST INSTRUMENT: Orientation towards Science

Screenshot from survey:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science makes our way of life change too fast.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Science makes our lives healthier.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary.</td>
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<tr>
<td>Because of science, there will be more opportunities for the next generation.</td>
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<tr>
<td>We depend too much on science and not enough on faith.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>Science makes our lives easier.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Science is more likely to cause problems than to find solutions.</td>
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<td>Scientific research should not be supported by the federal government.</td>
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<tr>
<td>Science makes our lives more comfortable.</td>
<td>☐</td>
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<tr>
<td>The benefits of science are greater than any harmful effects.</td>
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Appendix F

PILOT TEST INSTRUMENT: Orientation towards Scientists & Forensic Investigators

Orientation towards Scientists & Forensic Investigators
Please indicate how much you agree with the following statements.
(1 = strongly disagree to 5 = strongly agree)

- Scientific (forensic) work is dangerous.
- Scientists (forensic investigators) do not get as much fun out of life as other people do.
- Scientists (forensic investigators) usually do not get married.
- Scientists (forensic investigators) who are married do not spend much time with their families.
- Scientists (forensic investigators) are odd and peculiar people.
- Scientists (forensic investigators) are not likely to be very religious people.
- Scientists (forensic investigators) have few outside interests beyond their work.

Screenshot from survey:
Appendix G

PILOT TEST INSTRUMENT: Demographics

Screenshot from survey:

Please identify your gender:
- Male
- Female

What is your age, in years?

What ethnicity do you identify with most?
- Caucasian
- African American
- Hispanic/Latin
- Asian/Pacific Islander
- American Indian
- Other (please specify)

What is the highest level of education you have completed?
- Less than high school
- Some high school
- High school degree/GED
- Some college
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral degree

While you were in college (if attended), how many courses did you take in:

<table>
<thead>
<tr>
<th>Natural sciences (i.e., chemistry, physics, or biology, etc.)</th>
<th>Please type in the number below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social sciences (i.e., psychology, sociology, anthropology, etc)</td>
<td></td>
</tr>
<tr>
<td>Computer sciences or technologies</td>
<td></td>
</tr>
</tbody>
</table>
Appendix H
PRIMARY STUDY INSTRUMENT: Total television viewing

**Total television viewing**
For the following, please indicate how many hours of television you watch during each of the time periods listed. (Choices are listed in 15 minute intervals, on a drop-down menu)

During the average **weekday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

During the average **Saturday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

During the average **Sunday**, how many hours do you watch television:
- From 6 a.m. to noon
- From noon to 6 p.m.
- From 6 p.m. to midnight
- From midnight to 6 a.m.

Screenshot from survey:
Appendix I

PRIMARY STUDY INSTRUMENT: Crime drama viewership

Crime drama viewership
Please indicate how often many hours you watch each show in an average week.
(Responses will range from 0 hours – 12 hours or more in half hour increments, in a drop down box. The shows will be intermixed in order to prevent testing effects).

Crime Dramas:
- NCIS
- Bones
- The Closer
- CSI
- CSI: NY
- Law & Order: Criminal Intent
- NCIS: Los Angeles
- The Mentalist
- Criminal Minds
- Law & Order: SVU
- CSI: Miami
- CSI: Las Vegas
- Law & Order: Los Angeles
- Body of Proof

Non-Crime Programming:
- Dancing with the Stars
- Dateline NBC
- Grey’s Anatomy
- Private Practice
- Desperate Housewives
- Glee
- Chuck
- The Office
- Family Guy
- House M.D.

Screenshot from survey:

Please indicate approximately how many hours you watch each show in an average week.
Appendix J

PRIMARY STUDY INSTRUMENT: Expectations for Forensic Evidence

Expectations of Forensic Evidence

- How likely do you think each of the following types of evidence would be presented in a criminal trial for (murder, rape, theft, or any criminal case)?

Types of evidence:

- Responses for the evidence types for expectations range from 1 (very unlikely) to 5 (very likely)

  Types of non-scientific evidence:
  - Eyewitness testimony from the alleged victim
  - Eyewitness testimony from at least one other witness
  - Testimony determining motive for the crime
  - Testimony establishing alibi or whereabouts of the accused

  Types of scientific evidence:
  - Scientific evidence of some kind
  - DNA evidence
  - Print evidence (fingerprint, shoeprint)
  - Ballistics or other firearms laboratory evidence
  - Drug/Toxicology analysis
  - Blood analysis
  - Fiber/hair analysis

Screenshot from survey:
Appendix K
PRIMARY STUDY INSTRUMENT: Infallibility of Forensic Evidence

Infallibility of Forensic Evidence
Please indicate how much you agree with the following statements.
(1 = strongly disagree to 5 = strongly agree)

- The only true way to tell if a person committed a crime is through forensic evidence.
- Forensic evidence leads to a singular, correct answer.
- Every crime can be solved through forensic evidence.
- Forensic evidence is proof of guilt.
- Interpretation of forensic evidence is free from bias.
- Interpretation of forensic evidence is not influenced by personal feelings.
- Forensic investigators can misinterpret scientific evidence (reverse coded)

Screenshot from survey:
Appendix L
PRIMARY STUDY INSTRUMENT: Orientation towards Science, Scientists, and Forensic Investigators

**Orientation towards Science**
Please indicate how much you agree with the following statements.
(1 = strongly disagree to 5 = strongly agree)

- Science makes our lives easier.
- Science makes our lives more comfortable.
- The benefits of science are greater than any harmful effects.

**Screenshot from survey:**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science makes our lives easier.</td>
<td></td>
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<tr>
<td>The benefits of science are greater than any harmful effects.</td>
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</tr>
<tr>
<td>Science makes our lives more comfortable.</td>
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</tr>
</tbody>
</table>

**Orientation towards Scientists & Forensic Investigators**
Please indicate how much you agree with the following statements.
(1 = strongly disagree to 5 = strongly agree)

- Scientists (forensic investigators) do not get as much fun out of life as other people do.
- Scientists (forensic investigators) usually do not get married.
- Scientists (forensic investigators) who are married do not spend much time with their families.
- Scientists (forensic investigators) are odd and peculiar people.
- Scientists (forensic investigators) are not likely to be very religious people.
- Scientists (forensic investigators) have few outside interests beyond their work.

**Please indicate how much you agree with the following statements:**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientists do not get as much fun out of life as other people do.</td>
<td></td>
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<tr>
<td>Scientists usually do not get married.</td>
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</tr>
<tr>
<td>Scientists who are married do not spend much time with their families.</td>
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<tr>
<td>Scientists are odd and peculiar people.</td>
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<tr>
<td>Scientists are not likely to be very religious people.</td>
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<tr>
<td>Scientists have few outside interests beyond their work.</td>
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</tbody>
</table>
Appendix M
PRIMARY STUDY INSTRUMENT: Demographics

Demographics (Screenshots from survey)

Please identify your sex:
- Male
- Female

What is your current age, in years?

What ethnicity do you identify with most?
- Caucasian
- African American
- Hispanic/Latin
- Asian/Pacific Islander
- American Indian
- Other (please specify)

What is the highest level of education you have completed?
- Less than high school
- Some high school
- High school degree/GED
- Some college/university
- Associate’s degree
- Bachelor’s degree
- Master’s degree
- Doctoral degree
If yes, then respondents were prompted with:

**Have you ever sat on a jury for a criminal trial?**

- [ ] Yes
- [ ] No

Responses in the dropdown box ranged from 1 to 10, as well as a response of “I have never sat on a jury” in case the person was incorrectly directed here.
Appendix N

Correlations between Crime Drama Viewing and Dependent Variables

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<td>2. Likelihood of evidence in murder cases</td>
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<tr>
<td>3. Likelihood of evidence in theft cases</td>
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<td>5. Likelihood of evidence in every criminal case</td>
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<tr>
<td>6. Infallibility of forensic evidence</td>
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<td>.07</td>
<td>.19**</td>
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<td>.80***</td>
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</tr>
</tbody>
</table>

Note. N = 188. Items for the orientation toward scientists and forensic investigators are negatively worded; therefore, positive correlations mean a more negative orientation toward scientists and investigators.

*p < .05
**p < .01
***p < .001
Appendix O

Correlations between Overall Weekly TV Viewing and Dependent Variables

<table>
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<td>2. Likelihood of evidence in murder cases</td>
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<tr>
<td>4. Likelihood of evidence in rape cases</td>
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<td>5. Likelihood of evidence in every criminal case</td>
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</table>

Note. N = 188. Items for the orientation toward scientists and forensic investigators are negatively worded; therefore, positive correlations mean a more negative orientation toward scientists and investigators.

*p < .05
**p < .01
***p < .001
Appendix P

Correlations between CSI Viewing and Dependent Variables

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</tr>
</tbody>
</table>

Note. N = 188. Items for the orientation toward scientists and forensic investigators are negatively worded; therefore, positive correlations mean a more negative orientation toward scientists and investigators.

*p < .05

**p < .01

***p < .001
References

http://www.cbs.com/primetime/CSI/about/

Hillsdale, NJ: Lawrence Erlbaum.


*Communications, 35*, 439-460. doi:10.1515/COMM.2010.023


*Communication Research, 8*, 73-95. doi:10.1177/009365028100800103

Hirsch, P. M. (1981b). On not learning from one’s own mistakes: A reanalysis of Gerbner et al.’s findings on cultivation analysis part II. 
*Communication Research, 8*, 3-37. doi:10.1177/009365028100800101

*Public Opinion Quarterly, 44*, 287-302. doi:10.1086/268597


doi:10.1207/s15506878jobem4701_3


doi:10.1111/j.1468-2311.2008.00495.x


