The Science of Persuasion: Practical Insights from Research on Expert Witness Effectiveness and Jury Decision-Making

Harnessing the Science of Persuasion for Expert Witness Testimony

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INTRODUCTION

Expert testimony is intended to assist jurors with their task of evaluating trial evidence by providing them with information that is not commonly known by laypeople but is relevant for making the decision confronting the jury. Experts may also offer an opinion about a crucial issue in the case based on their specialized knowledge or skills. When testifying about their area of expertise or about the opinion that they have formed after reviewing case facts, experts are essentially communicating information to the jury with the intent of influencing their decision in a case. Thus, expert testimony can be construed as a persuasive message delivered by an expert (the source) to the jury (the audience). We begin this article by introducing theories of persuasion, then briefly introduce jury methodology to equip the reader to better understand the science of studying jurors' evaluation of expert testimony. We then discuss relevant studies that have examined persuasion in the expert witness context, and end with practical implications for strategies attorneys can use for witness selection and preparation.

The Science of Persuasion

The science of persuasion has a rich and lengthy history. McGuire (1985) traced its history, demonstrating that persuasion has been the focus of study since the Periclean Age of ancient Athens in the fifth century B.C. By the late 1970s, a vast number of theories and studies had accumulated on persuasion, examining whether characteristics of the source of the persuasive message (who), the message itself (what), the audience receiving the message (to whom), and the method of delivery (how) influenced the extent to which targets of a persuasive message adopted the position advocated in the message. Despite the extensive research, there was "surprisingly little agreement concerning if, when, and how" the source, message, recipient, and delivery variables affected persuasion (Petty & Cacioppo, 1986, p. 125). The literature to that point showed that the same variable could increase persuasion in some situations but could decrease persuasion or have no effect on persuasion in other situations. By the early 1980s, two models of persuasion were developed that were able to integrate and account for those seemingly conflicting prior findings and theories. Although different researchers developed the two models, the theories underlying the two models converged and provided similar frameworks for understanding the basic processes underlying the effectiveness of persuasive arguments. Each model contended that the science of persuasion could be succinctly organized by categorizing the route to persuasion via one of two distinct paths (Chaiken, 1980; Petty & Cacioppo, 1981, 1986). One path was called "central" (Petty & Cacioppo, 1981, 1986) or "systematic" (Chaiken, 1980) processing, and the second was called "peripheral" (Petty & Cacioppo, 1981, 1986) or "heuristic" (Chaiken, 1980) processing.

Central Processing. The central route to persuasion (also known as systematic processing) is defined by a person's thoughtful and careful consideration of the strengths of an argument (Chaiken, 1980; Petty & Cacioppo, 1986). To be persuaded by the content of an argument, a person must be both motivated to pay attention to the argument in its entirety and able to comprehend it, evaluating the quality of the arguments presented. The law requires that jurors process evidence systematically, assuming that they are motivated and able to evaluate the strength of the evidence presented and then make a decision about how persuaded they are on the basis of the argument's substance. Specifically, the 14th Amendment to the U.S. Constitution requires that triers' legal decisions be based on evidence without influence of legally irrelevant information. Despite this requirement of jurors, it is likely that they sometimes lack the ability to process complex evidence, including evidence provided by experts.

Peripheral Processing. Although ideally people's evaluation of a persuasive communication would be a function of the quality of the arguments in the message, a message can also persuade the audience to adopt a particular viewpoint after only a minimal amount of thinking about or consideration of the validity of the content of the persuasive message. Instead, people may base their agreement with the message on a superficial assessment of cues that are unrelated to the quality of the evidence. For example, simple or structural characteristics of the message, such as the number of arguments or the length of time a persuasive message lasts, might influence a person instead of the actual content of the message (Chaiken, 1987). How other people react to the message can also influence a person's response to the message. That is, instead of purely processing the persuasive argument on its merits, people might notice how positively or negatively other listeners react, and then use the reaction of others as a heuristic or shortcut to arriving at their own level of persuasion (Chaiken, 1987). Characteristics of the communicator can function as powerful peripheral cues influencing persuasion. People may be more persuaded by an attractive, likeable, powerful person than a less attractive, likeable, or powerful person even if the information of the persuasive argument itself does not change (Chaiken, 1987; Neal, 2009).

The Science of Studying Jury Decision Making

Before turning to descriptions of studies that have examined factors that influence the extent to which different experts and different forms of expert testimony persuade jurors, it is important to discuss the methods that jury researchers use to examine these issues. Researchers are likely to use one of three methods to study jury decision making. In the first of the three types of studies, researchers examine public records of jury trials, correlating features of the case with the trial outcome. These studies are known as archival studies because their data are drawn from archival records, usually appellate records. The researcher cannot control what types of data are contained in the records so the research questions are limited by what is in the record. Although there have been archival studies of expert testimony that examine whether developments in case law influenced judicial decisions to admit expert evidence (Groscup, Penrod, Studebaker, Huss, & O'Neil, 2002) and what case factors predict whether an expert will be proffered in child sexual abuse cases (Connolly, Price, & Read, 2006), we know of no archival studies of the role of expert testimony in jury decision making. Archival research on the influence of expert testimony

on jury verdicts in criminal cases would not be possible based on appellate records because there would be no variability in verdicts (all defendants would have been found guilty). And in civil contexts, there are likely many factors that would covary with whether expert testimony was proffered or what form it would take that could also influence verdicts, making it unclear whether changes in verdict were the result of the expert testimony or the other related factors.

In juror interview studies, jurors in real trials are interviewed after the trial, providing answers to questions about what factors influenced their verdicts. For example, Berger (1997) reported that jurors in a medical malpractice case were not influenced by the content of the expert's testimony in the case but instead by the doctor's demeanor on the stand. Because people generally lack awareness of the factors that influence their decisions (Nisbett & Wilson, 1977), juror interviews of this type can provide information about what jurors *believe* influences their decisions but not which factors actually affect their judgments.

In the third type of method – experimental studies – researchers randomly assign jurors or juries to different trial conditions to explore whether the differences between the conditions cause changes in verdicts. Experimental studies can be conducted in the field, with actual trials being assigned to different conditions. One example is the Arizona Jury Reform study in which researchers randomly assigned juries to one of two conditions. The first was a traditional condition in which juries were not allowed to discuss the case before they had heard all the evidence in the trial and had been instructed by a judge. In the second condition, juries were allowed to discuss the case at any point in the trial as long as they were in the jury room and all jurors were present (Hannaford, Hans, & Munsterman, 2000). Experiments may also be conducted in laboratories using a trial simulation methodology, in which participants experience a trial stimulus that varies based on the research question of interest and make decisions about the trial, including rendering verdicts. Simulation studies vary on a number of dimensions, including whether the participants are college students or jury-eligible community members, the trial stimulus is a written summary or a more realistic videotaped simulation, and verdicts are collected from juries after deliberation or from individual jurors who do not deliberate (Penrod, Kovera, & Groscup, 2011).

Experiments contain two key features that allow researchers to determine whether a change in the trial condition causally influenced changes in verdict. First, the experimenter chooses particular variables to manipulate between the different study conditions while keeping all other details constant, ensuring that the only difference between the conditions is the manipulated variable. Second, random assignment of jurors or juries to conditions ensures that any differences among the participants are randomly distributed among the different conditions, rather than systematically associating them with particular conditions. With these two methodological features, any differences in verdicts among the different conditions can be attributed to the manipulated difference between the conditions (Penrod et al., 2011). Because random assignment has a greater chance of breaking down in field experiments than in laboratory experiments—as was the case in the Arizona study— jury researchers tend to favor the laboratory simulation method to ensure that they have control over random assignment and the manipulation of the variable of interest (Penrod et al., 2011).

The Intersection of the Sciences of Persuasion and Juries: How Expert Witnesses and their Messages are Perceived

So far, we have introduced the dual-process models of persuasion, explaining in theory how triers of fact can be persuaded after considering the substance of the message in addition to how they can be persuaded by other peripheral cues that are unrelated to the strength of the message itself. We have also briefly explained the science of studying juror decision making, describing the methods scientists use to isolate and examine how specific messages and situations directly influence juror perceptions and decisions using experimental methods. We now turn to some specific studies that have examined jurors' persuasion by expert witness testimony, starting with studies that have examined persuasion via peripheral routes and then turning to jury persuasion through central routes.

Jurors and Peripheral Cues. Peripheral cues associated with the expert witness (i.e., the source of the persuasive message) affect the extent to which jurors are persuaded to make decisions that are consistent with the expert testimony. One such cue is witness credibility. The Witness Credibility Model is an empirically-developed framework that conceptualizes witness credibility as a composite of four elements: witness likeability, knowledge, confidence, and trustworthiness (Brodsky, Griffin, Cramer, 2010; Brodsky, Neal, Cramer, & Ziemke, 2009; Cramer, Brodsky, & DeCoster, 2009; Neal, Guadagno, Eno, & Brodsky, 2012; Parrott, Neal, Wilson, & Brodsky, 2015). Jurors evaluate the substance of witness's testimony while simultaneously evaluating witnesses on these peripheral cues, among

other peripheral cues. Previous studies have evaluated the independent effect of these four peripheral factors and compared how mock jurors perceive experts, respond to expert testimony, and arrive at decisions when the substance of testimony remains constant but these other factors change. One of the most interesting things about this series of studies is that the case materials used in each study was constant, including the content of the expert witness testimony. What differed across these studies was one of the four factors – they were independently manipulated in each of the studies to provide information about how each affected juror decision making. Thus, because the substance of the persuasive message (i.e., the testimony) stayed the same, this body of studies provides useful information about how these peripheral cues affect persuasion in the expert testimony context.

For example, two studies manipulated how likeable expert witnesses were (high versus low expert likeability conditions) when the content of the testimony was the same across the two conditions. Jurors were more persuaded by the likeable experts than the unlikeable ones – especially when the expert was a woman (Brodsky et al., 2009; Neal et al., 2012). Other studies showed that expert knowledge (e.g., displays of the expert's competence, expertise, impressive educational credentials, relevant experience, self-proclaimed expertise) were important for credibility and persuasiveness (Neal et al., 2012; Parrot et al., in press). Specifically, highly knowledgeable experts were perceived as more credible and more persuasive than the low-knowledgeable experts, but this finding was particularly robust for female experts (Neal et al., 2012). That is, displays of expertise were less critical for male than for female experts; it was essential for female experts to be perceived as knowledgeable to be persuasive, but male experts could still be persuasive even if they were perceived as less knowledgeable.[1]

Finally, in a different study, the confidence of the expert was manipulated across conditions (low versus medium versus high) when the content of the testimony remained consistent. The unconfident expert was the least persuasive (Cramer et al., 2009). Of note, the medium-confident expert was more persuasive than the high-confident expert in that study. The authors speculated that the high-confident expert may have come across as too assertive and perhaps arrogant, whereas the medium-confident expert was confident enough to be credible without being unlikeable about it.

Peripheral cues are more likely to be influential when other factors interfere with jurors motivation and/or ability to process the evidence systematically. In one study, mock jurors heard a civil case in which the issue was whether the chemical polychlorinated biphenyls (PCBs) were the proximal cause of the plaintiff's cancer (Cooper & Neuhaus, 2000). The expert witness testified in either a low complexity or high complexity condition, so that the authors could test whether jurors would be more likely to rely on peripheral cues when they could not understand the evidence. A second manipulation was also included – the expert was paid either an extremely high or extremely low rate of pay compared to the typical pay for a court expert, which came out during testimony. The pay manipulation was a peripheral cue; the authors expected mock jurors to be persuaded by the pay information only when they could not understand the testimony and thus had to find other factors on which to base their decisions. To illustrate the complexity manipulation, when asked whether any research studies had investigated the effect of PCBs on animals, the expert in the low-complexity language condition responded (p. 164):

> Definitely. In 1980, a scientist named McConnell, published a summary of the diseases that PCBs cause. He found that PCBs caused several different forms of liver disease in rats, mice, monkeys, and humans. In the rats and mice, PCBs caused not only liver disease, but also cancer of the liver. In addition to the liver damage, McConnell found diseases of the immune system as well.

In the high-complexity language condition, the expert replied (p. 164):

> Definitely. In 1980, McConnell, publishing in the Elsevier Biomedical Press, reported a summary of the pathological findings due to the toxicity of PCBs. He reported tumor induction in rats and mice. He also reported that not only rats and mice, but in monkeys as well, there was hepatomegaly, hepatomegalocytosis, and lymphoid atrophy in both spleen and thymus.

As hypothesized, mock jurors in the simple language condition were able to understand the testimony and were unaffected by the peripheral cue of expert pay. However, when the testimony was in complex language that they could not understand, they instead based their perceptions of the expert and the persuasiveness of the testimony on

[1] For a more comprehensive review of the persuasiveness of women compared to men experts in different court contexts, see Neal (2014).

the peripheral cue of pay. Specifically, the low-paid expert was the most persuasive in the high complexity condition whereas the high-paid expert was the least persuasive in the high complexity condition.

Jurors and Systematic Processing. Remember that to process expert testimony systematically through the central route of persuasion, jurors must be motivated and able to process the quality of the arguments made by the expert; thus processing via the central route is evident when jurors make decisions that are consistent with the strength of the evidence being presented. One mechanism for increasing the ability of jurors to process expert testimony systematically and to integrate it with the trial evidence may be to provide the expert an opportunity to link relevant research to the specific facts of the case to concretize for jurors how the expert's testimony relates to the case facts. In a test of this hypothesis, jurors watched a videotaped simulation of a child sexual abuse trial in which the victim testified in a calm, composed, and confident manner or she was emotional, confused, and uncertain (Kovera, Gresham, Borgida, Gray, & Regan, 1997). The trial contained one of four conditions. In the first, called the "control" condition, there was no expert testimony. In the second, standard expert testimony provided a summary of the research on children's reactions to child sexual abuse (which are consistent with the more emotional child's demeanor). In the third condition, expert testimony provided the summary of the research like in the second condition, but repeated the summary of the research so that jurors would hear it more than once. Finally, in the fourth condition, expert testimony summarized the research like in condition two, but then made the link between the research and the case facts concrete. In the standard (second) and repetitive (third) expert conditions, jurors' decisions about the child and the verdict became less consistent with the expert's testimony compared to the control condition without expert testimony. That is, jurors who saw the composed child found her to be more credible and were more likely to find the defendant guilty despite expert testimony about the research showing that child victims are likely to be emotional and uncertain. In contrast, the expert testimony that provided the concrete link between the research and the case facts was the only testimony that enabled jurors to use the expert information provided to evaluate the demeanor of the child witness. In this "concrete" condition, jurors found the emotional and uncertain child to be more credible and rendered more guilty verdicts when the child was emotional.

Other research has examined the ability of procedural safeguards to increase the ability of jurors to process expert evidence systematically, enabling them to recognize variations in the methodological quality of the research presented by experts. Over all, jurors appear to be influenced by expert testimony, often by peripheral cues like whether the research has been generally accepted (Kovera, McAuliff, & Hebert, 1999), and are not particularly sensitive to many types of flaws in the methodology of the research underlying that testimony (Kovera et al., 1999; McAuliff, Kovera, & Nunez, 2009). Although cross-examination has been touted as the "greatest legal engine invented for the discovery of truth" (Wigmore, 1974), studies suggest that even well-designed traditional cross-examinations are unlikely to help jurors systematically weigh the quality of scientifically-based information (e.g., Kovera et al., 1999). However, recent research suggests that scientifically-informed cross-examination specifically designed to educate jurors about the flaws in an expert's research can improve jurors' abilities to process the evidence, sensitizing them to the differences between flawed and valid expert evidence (Austin & Kovera, 2015).

Another potential safeguard for helping jurors process evidence systematically is the presentation of contrary evidence via an opposing expert. Initial studies found that having an opposing expert met with limited success in enabling jurors to systematically process evidence (i.e., to compare and contrast the content of the experts' testimony, evaluating the relative strengths and weaknesses of each). Instead, jurors weren't persuaded by either expert: they used the experts' disagreement as a peripheral cue that the experts were biased and relied on other trial information to make their decisions, termed a "skepticism effect" (Levett & Kovera, 2009, p. 128). A more recent study, however, suggests that if the opposing expert uses a demonstrative to concretely walk jurors through a methodological evaluation of the research underlying the other expert's testimony, jurors are better able to differentiate flawed and valid expert evidence, and are persuaded only by the valid evidence (Jones & Kovera, 2015). That is, when jurors know how to evaluate the validity of the evidence, opposing experts can have a "sensitizing effect" (Levett & Kovera, 2009, p. 128), helping jurors systematically evaluate evidence rather than inducing the peripheral "skepticism effect" cue.

Practical Implications for Witness Selection and Witness Preparation

What does the theory of persuasion, the science of juror decision making, and the specific findings from jury studies teach us about the effectiveness of expert witness testimony? The information reviewed above can be translated into practical strategies for selecting and preparing expert witnesses to be effective, credible, and persuasive communicators. Of course, there is an important distinction between preparing an expert to deliver effective

testimony and preparing the expert to deliver false or misleading testimony to increase persuasion. False or misleading testimony is unethical and illegal (American Bar Association, 2001, §1.2d & §3.4b). Ethical expert witness preparation aims to assist the expert in delivering responsible testimony in a manner that motivates and enables the trier to understand the content of the information.

The expert testimony that is best for the justice system is the kind that helps triers process information systematically as required by the 14th Amendment. What strategies can attorneys and judges use to help triers process information via the central route? The science we have reviewed suggests attorneys can:

- Ask experts to find relevant research that can be linked to specific facts of the case, and prepare experts to make clear and concrete for jurors the specific links to the case facts. Simply providing the research information without linking to the case facts appears to be less effective.
- Cross-examination of expert witnesses should be designed not only to expose the flaws in an experts' research but also to educate jurors about how and why those flaws matter. Only when jurors can understand the importance of and can recognize valid versus flawed evidence will they be able to weigh the evidence systematically.
- When an expert hired by one adversarial side will be opposed by an expert hired by the other, attorneys can equip jurors to properly evaluate the strength of the experts' arguments by educating jurors about valid versus flawed evidence. Then, the jurors should be concretely walked through an evaluation of the research underlying the experts' testimony.

Given that peripheral cues affect persuasion as well, how can attorneys use what we know about peripheral cues to help expert witnesses be effective, credible, and persuasive communicators? Attorneys and experts should attend to the expert's demeanor on the stand (see e.g., Brodsky, 1999, 2004, 2013). Specifically, expert witnesses should:

- Try to appear competent and knowledgeable. This attempt at impression management may be particularly important for women experts. Both men and women should explicitly expose expertise (see e.g., Cialdini, 2000; Titcomb et al., 2015). For example, during direct examination, attorneys might ask experts questions allowing them to provide details about strong educational credentials (e.g., specific training, where training was obtained, board certification), history of academic publication in case-relevant area of expertise, relevant professional experiences, and so forth.
- Be confident (but not arrogant). For example, be poised; maintain a stable tone of voice and moderate pace of speech; maintain sound eye contact with the attorneys, jury, and judge when appropriate; and keep a good posture. Acknowledge a reasonable degree of certainty but do not be excessively certain or assertive.
- Be likeable. Specifically, be respectful, well-mannered, and pleasant. Use layperson-friendly language by avoiding technical jargon and formal references. Again, this appears to be particularly important for women experts.

In sum, attorneys who seek to rely on the science of persuasion to maximize their experts' impact should first take steps to help jurors process the expert's evidence systematically. Secondarily, they should be aware of how peripheral cues affect jurors' abilities to process information systematically and reduce their negative impact by preparing experts how to generate positive peripheral cues.

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