

THE CASE FOR EXPERT TESTIMONY ABOUT EYEWITNESS MEMORY

Michael R. Leippe
Adelphi University

Eyewitness expert testimony informs a jury about psychological processes and accuracy-related variables in eyewitness testimony. Appropriately chosen testimony is not prejudicial, and it is on sound scientific ground. Eyewitness research has established reliable, applicable findings and demonstrated that jurors have insufficient knowledge of some findings and poorly judge eyewitness accuracy. Studies of trial dynamics and reactions to eyewitnesses suggest a sizable risk of inordinate eyewitness impact, creating sizable risk of conviction on the basis of mistaken identifications. Trial simulations examining eyewitness expert testimony indicate it promotes modest, appropriate increases in skepticism about eyewitnesses, even when the expert gives a general overview of research and admits to limitations. The psychological and legal professions should develop responsible guidelines for use of expert testimony in court.

Scientific psychology was in its infancy when articles about mistaken eyewitness identifications began appearing in the field (e.g., Munsterberg, 1908; Stern, 1910; Whipple, 1909), and a few legal scholars chimed in to debate the implications of the science of memory for the law (e.g., Wigmore, 1909). However, eyewitness evidence probably has given thoughtful people pause since trials, tribunals, and other forms of settling disputes emerged in human culture. On the one hand, all people know they forget things, and therefore they know that memory can be fallible. Knowing this, an accused person's loss of liberty or even life as a result of another's faulty memory follows as a disturbing possibility. On the other hand, it is hard to deny the eyewitness a day in court. Although research on this is scant, people probably feel better about convicting an alleged criminal when an eyewitness claims "I saw *him* do it" than when there is no such claim. In everyday language, "getting caught" often means "being seen."

In a word, thoughtful attitudes about eyewitness testimony are ambivalent. The legal system and the fact finders therein cannot live without it, but it sometimes can be hard to live with. Over the last couple of decades, the "hard to live with" side of this psychic and psycholegal conflict has grown. A great upsurge in eyewitness memory research began in the early 1970s, and much of this research has revealed a disturbingly high error rate (e.g., Buckhout, 1974; Leippe, Wells, & Ostrom, 1978) and ever more ways in which eyewitness identifications and recollections are susceptible to error.

The mounting evidence of eyewitness error is one of the major bases of the argument that expert courtroom testimony by research psychologists about eyewitness testimony is sometimes required as a means of providing jurors education and perspective about eyewitness testimony. In essence, many psycholegal scholars

I thank Saul Kassir for helpful comments on a previous draft.

Correspondence concerning this article should be addressed to Michael R. Leippe, Derner Institute of Advanced Psychological Studies, Adelphi University, Garden City, New York 11530. Electronic mail may be sent via Internet to leippe@sable.adelphi.edu.

believe that jurors, in some nontrivial number of cases, will be underappreciative of the various threats to eyewitness veracity, as well as of the magnitude of those threats. This article focuses on expert testimony about eyewitness memory, with an emphasis on the following questions: Does the scientific knowledge base concerning eyewitness memory have valid insights to offer that fact finders do not already know? Do jurors need help in evaluating eyewitness reports? If so, what qualities of jurors and trials form the bases of this need? Can expert testimony, theoretically, deliver this help? Will expert testimony, in practice, deliver the help and improve jurors' ability to evaluate validly eyewitness testimony? If so, how and when can it best be used in the court system? Regarding the last three questions at least, absolute answers cannot yet be offered. My goal is to offer reasonable answers based on the empirical evidence to date and with a focus on the social and cognitive psychology of the participants in the criminal justice system—eyewitnesses, police officers, judges, lawyers, and, especially, jurors. Within these boundaries of data and focus, the answers developed here coalesce into a positive, endorsing case for eyewitness expert testimony.

Expert Testimony Defined

Expert testimony about eyewitness behavior occurs when a psychologist is admitted by the judge as an expert authority on "eyewitness testimony," takes the stand in a jury trial, and presents information about research and theory concerning memory, the reporting of memory, and the variables known to influence memory and memory reports. The testimony is not based on a clinical evaluation of the eyewitnesses in the case and is not presented as "facts" about the case at hand. Rather, it is designed to provide scientific information that may assist jurors in interpreting "contested adjudicative facts" (Vidmar & Schuller, 1989, p. 133), that is, eyewitness statements of who did it and what happened.

Eyewitness expert testimony is a form of what Monahan and Walker (1988) have labeled *social framework testimony* (cf. Goodman & Loftus, 1992; Vidmar & Schuller, 1989), to distinguish it from other kinds of expert testimony that involve presentation of social science data that are collected on or about the litigating parties (e.g., expert testimony in a libel case involving presentation of data collected specifically to determine whether a celebrity's reputation was tarnished by an unflattering characterization) or are used as a basis for seeking a change in the law on the basis of social science research (e.g., the social science testimony in the *Brown v. Board of Education*, 1954, school segregation case). Instead, social framework testimony presents "general conclusions from social science research" as a means of helping a jury "in determining factual issues in a specific case" (Monahan & Walker, 1988, p. 470). Thus, the eyewitness expert provides a context or framework for evaluating what eyewitnesses report—but the jurors do the evaluating. In simple and summary terms, the expert discusses how eyewitness memory works and what affects it, and jurors, ideally, factor the information into their consideration of likely eyewitness accuracy in the case at hand.

In this article, the term *expert testimony* refers to the delivery to a jury by a qualified research psychologist of information about research and theory on eyewitness behavior. When, or at what stage of the trial, the testimony is given, who sponsors the testimony (the defense, the prosecution, the judge, or legal statutes), and the content of the testimony (e.g., general or specific to factors in the case at

hand) are not intrinsic to this definition of expert testimony. Instead, these variations are seen as conditions with which the effects of the testimony on jurors and justice may covary. One of the goals of this article is to estimate which, if any, conditions of expert testimony work best.

Expert Testimony Controversy: Historical and Legal Background

Up until the mid-1970s, expert psychological testimony about eyewitness memory was rarely given, rarely sought by the legal system, and rarely contemplated by experimental psychologists. The courts certainly had recognized problems with eyewitness identification, especially suggestive procedures used in procuring it. However, it was assumed that the recognized problems with eyewitness error could be ameliorated by (a) the adversarial system itself, in which cross-examination of eyewitnesses and opening and closing arguments centering on eyewitness credibility operate to caution jurors about memory fallibility; (b) rules designed to prevent admission of identifications gained by suggestive or coercive police procedures (e.g., the U.S. Supreme Court decision in *United States v. Wade*, 1967); and (c) adoption of guidelines for evaluating eyewitness testimony that could be delivered to jurors through a judge's instructions (e.g., *Neil v. Biggers*, 1972; *United States v. Telfaire*, 1972). In addition, on the rare occasions in which eyewitness expert testimony was offered, it was typically excluded on the basis of one or more of the tests for eyewitness expert testimony set down by the Ninth Circuit Court of Appeals in *United States v. Amaral* (1973). It was usually excluded because eyewitness memory was deemed an improper subject matter for expert testimony (e.g., it did not exceed the jury's common sense or invaded the jury's province of judging credibility) or more prejudicial than probative (e.g., jurors would be overwhelmed by it; see, e.g., Doyle, 1989; McKenna, Treadway, & McCloskey, 1992).

All this was before the explosion of research suggesting that the sources and magnitude of eyewitness errors exceed normative expectations and that jurors have inadequate understanding of eyewitness error. This research, in part, is responsible for the trend beginning in the early 1980s to admit eyewitness expert testimony, at least when an eyewitness identification is the primary or sole evidence against the defendant (Goodman & Loftus, 1988; McKenna et al., 1992; Woocher, 1986). The emerging view has been that expert testimony about memory can be helpful (e.g., as helpfulness is codified in Rule 702 of the Federal Rules of Evidence; *United States v. Downing*, 1985) and that to exclude it may constitute an abuse of the trial judge's discretion (*People v. McDonald*, 1984; *State v. Chapple*, 1983). This view, however, is by no means universal. Goodman and Loftus (1992), for example, described a recent exclusion of expert testimony in a high-profile case (*Robertson v. McCloskey*, 1988). In 1994, my testimony was excluded in Connecticut and Virginia, even after it was allowed in an unprecedented decision in the former state in 1990.

Arguments of Opposition

More to the point, even as the courts have become more receptive to eyewitness expert testimony, the issue of whether they should ever be receptive has been hotly debated in recent years. A number of arguments against eyewitness expert testimony have been presented, by both lawyers and (an apparent minority of) experimental and social psychologists. These arguments of opposition can be grouped into five categories.

1. The scientific basis of research and theory is insufficient. Commentators have argued that research findings concerning eyewitness memory are not sufficiently reliable and valid, not generalizable to the "real world," or not generally accepted by the psychological science community.
2. Juror knowledge is sufficient already. According to some accounts, the research findings do not inform jurors of anything they do not already know; at best, experts waste the court's time.
3. Experts would do the jury's job. The idea here is that testimony by eyewitness experts invades the province of the jury by, in effect, speaking directly to the matter of the eyewitness's credibility.
4. Prejudicial effect exceeds probative value. Because an expert witness would likely discuss factors that decrease eyewitness accuracy, some observers worry that expert testimony makes jurors unduly skeptical of any eyewitness identification. As Doyle (1989) aptly noted, some opponents of psychological testimony believe this testimony somehow will "dazzle the jurors with its aura of expertise" (p. 139).
5. Traditional devices for challenging eyewitnesses are effective. This argument maintains that the legal system has long recognized the eyewitness problem and evolved mechanisms to help jurors unmask unreliable witnesses. Opening arguments can be used to prime jurors' distrust, cross-examination allows the opportunity to discredit the discreditable, and judge's instructions can remind jurors that eyewitnesses can err.

The contention here is that these arguments do not hold up well against either legal reasoning or psychological data and theory. The next sections present some empirically based counterarguments to the traditional reasons for prohibiting expert testimony and outline some conceptual and legal counterarguments, many of which have been made in some form already by legal scholars (e.g., Doyle, 1989; Woocher, 1986) and psychologists (e.g., Goodman & Loftus, 1988, 1992; Wells, 1986, 1993). After this, subsequent sections move beyond refuting old arguments against expert testimony and examine psychological reasons for supporting expert testimony and whether these reasons suggest when and how expert testimony should be used in the courtroom.

Science and the Law: From Frye to Daubert

Before the rebuttal, however, it is important to examine some additional legal history, namely, how the courts have treated scientific evidence. Research on eyewitness testimony is scientific. As such, it has been subject to the *Frye* test, a legal criterion established more than 70 years ago that scientific testimony is admissible only if it is based on a theory or body of evidence that is "sufficiently established to have gained general acceptance in the particular field in which it belongs" (*Frye v. United States*, 1923, p. 1014). This criterion was explicitly suggested for eyewitness research in *United States v. Amaral* (1973) and has been used as a basis for excluding expert eyewitness testimony (e.g., *United States v. Fosher*, 1979). Some courts and legal scholars (e.g., Lane, 1984) have advanced a form of the first of the arguments of opposition identified earlier, concluding that eyewitness research fails as science

because it has not yielded generally accepted findings. This critical view is shared by some experimental psychologists (Egeth, 1993; Elliott, 1993; Konecni & Ebbesen, 1986; McCloskey & Egeth, 1983; McKenna, Treadway, & McCloskey, 1992; Pachella, 1986), yielding de facto evidence against general acceptance.

As shall be seen, empirical developments have rendered this a weak complaint. A significant legal development, in the meantime, may have rendered the complaint nearly irrelevant as well. A 1993 Supreme Court decision in the case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.* has specifically addressed—and modified—the standards the federal courts use for admitting scientific evidence. Although limited presently to federal courts, it is likely, judging from past practices, that a substantial number of states eventually will follow some version of *Daubert* (Faigman, Kaye, Saks, & Sanders, 1994). The new standards have supplanted the *Frye* test and built on an earlier decision (*United States v. Downing*, 1985) in which an eyewitness expert's testimony was ruled admissible. The *Daubert* decision gives judges themselves the task of ascertaining whether an expert is proffering "(1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue" (p. 2796). Most important, it takes "general acceptance" and "an established theory" out of the center of the definition of scientific knowledge and replaces it with scientific methodology and validity. Knowledge is scientific if it is an "inference or assertion" that is "derived by the scientific method" (p. 2795). The scientific method, in turn, is described in the logical-positivist tradition in which experimental and social psychologists work—to wit, the empirical testing of hypotheses in a manner that allows their falsification and, failing falsification, conclusions that the findings are valid and reliable.

The focus on methodology bodes well for the admissibility of eyewitness research, because this research has been conducted using procedures and paradigms that are readily recognizable as scientific. The methodology based criterion is a clearer and more easily passed hurdle than murkier and less precise notions of a unifying general theory or general acceptance by the scientific community. The implications for eyewitness expert testimony, however, are not quite so positively simple. First, the judges themselves are required by *Daubert* (1993) to make "a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and . . . properly can be applied to the facts in issue" (p. 2796). This makes it likely that judges will scrutinize proffered testimony in piecemeal fashion. A judge may deem presentation of findings regarding some eyewitness factors admissible while excluding other findings from testimony because of inconsistencies across the otherwise valid studies. Theoretically, such scrutiny is sensible, except that the method leaves the decision of "enough" regularity up to a nonscientist—the judge. Second, even if it is deemed "scientific knowledge," the judge must also decide whether a research finding assists jurors (thus allowing the judge to apply the second argument of opposition—that jurors "already know it"; cf. Penrod, Fulero, & Cutler, 1995). This entails decisions regarding generalizability and intuitiveness of the finding, again a subjective matter. We will return to this matter of nonpsychologist subjectivity.

Eyewitness Research Findings: Accepted, Reliable, Applicable

So how does eyewitness psychology stack up as a science? Sufficient data have accumulated to evaluate eyewitness research in terms of three critical criteria:

acceptance, reliability, and applicability. The field and many of its findings pass all the tests.

Scientific Acceptance

Daubert reduces, but does not eliminate, reliance on judgments of scientific acceptance to determine admissibility. The decision asserts that "'general acceptance' can yet have a bearing on the inquiry" (*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 1993, p. 2797). Accordingly, a survey by Kassir, Ellsworth, and Smith (1989) of active eyewitness researchers ($n = 63$) has critical and positive implications for the admission of eyewitness expert testimony. This survey revealed a high level of agreement that the research findings most discussed by eyewitness experts in court are reliable enough to justify such discussion. Table 1 lists the 13 witnessing, witness, and identification-testing variables for which at least 70% of the researchers agreed that this was so. There is, then, consensus among the scientists, and not only among the more prolifically publishing proponents of expert testimony.

Reliability

Could the general acceptance of eyewitness findings by those who produce them (and testify about them) be merely collective self-delusion or self-justification? This seems unlikely. As other articles in this issue demonstrate, most of the inferences

Table 1
Findings That at Least 70% of the Researchers-Experts Surveyed by Kassir, Ellsworth, and Smith (1989) Rated as Reliable Enough to Include in Expert Courtroom Testimony

1. *Wording of questions*: An eyewitness's testimony about an event can be affected by how the questions put to that witness are worded. (97%)
2. *Lineup instructions*: Police instructions can affect an eyewitness's willingness to make an identification and/or the likelihood that he or she will identify a particular person. (95%)
3. *Postevent information*: Eyewitness testimony about an event often reflects not only what they actually saw but information they obtained later on. (87%)
4. *Accuracy-confidence*: An eyewitness's confidence is not a good predictor of his or her identification accuracy. (87%)
5. *Attitudes and expectations*: An eyewitness's perception and memory for an event may be affected by his or her attitudes and expectations. (87%)
6. *Exposure time*: The less time an eyewitness has to observe an event, the less well he or she will remember it. (85%)
7. *Unconscious transference*: Eyewitnesses sometimes identify as a culprit someone they have seen in another situation or context. (85%)
8. *Showups*: The use of a one-person showup instead of a full lineup increases the risk of misidentification. (83%)
9. *Forgetting curve*: The rate of memory loss for an event is greatest right after the event, and then levels off over time. (83%)
10. *Cross-racial/White*: White eyewitnesses are better at identifying other White people than they are at identifying Black people. (79%)
11. *Lineup fairness*: The more the members of a lineup resemble the suspect, the higher is the likelihood that identification of the suspect is accurate. (77%)
12. *Time estimation*: Eyewitnesses tend to overestimate the duration of events. (75%)
13. *Stress*: Very high levels of stress impair the accuracy of eyewitness testimony. (71%)

Note. Percentages of experts rating the statement as "reliable enough" are given in parentheses beside each statement.

about factors that influence eyewitness accuracy are based on multiple studies conducted in systematic programs of research carried out by multiple investigators working independently of each other. There is methodological variability across paradigms and investigators and often a concern with mundane realism prompted both by intrinsic (e.g., scientific zeal) and extrinsic (e.g., peer-review) factors. Eyewitness memory research is a large and sophisticated enterprise. It is not a small collection of college professors staging crimes on campus malls and in lecture halls, as some critics (and many judges) seem to think.

It is important to be clear about where inferences and conclusions regarding eyewitness psychology come from. For the most part, it has been necessary to develop empirical approaches to the topic that are tailored to the subject matter. Many clues about eyewitness psychology have been obtained from decades of research and theorizing on basic memory and basic social psychological processes. However, eyewitness researchers have not automatically drawn conclusions from this immense storehouse of knowledge and theory, because the prototypical eyewitness situation is so very different from the traditional foci of basic research (Wells, 1993). Eyewitness situations typically involve a one-time exposure to an otherwise strange face. The exposure is often short, the face is moving or embedded in a complex web of action and other faces, and the observer is under stress and thinking about how he or she should act. Alternatively, the observer has no reason to remember the face until after it is gone—a one-trial incidental learning situation. Memory testing, in turn, involves, among other relatively unique features, attempts to recognize a face that may have changed and a complex social psychology (e.g., possibly involving suggestion, conformity, or compliance pressures) associated with questioning not for the purpose of studying memory but of securing a “useful” memory report.

The critical point here concerns complaints about the overgeneralization of basic psychological research to eyewitness testimony. Given that the “eyewitness situation” just described is not well-represented in the basic cognitive and social research, it would be inappropriate to draw conclusions exclusively from that research. However, basic research findings are not (or need not be) the major or even a prominent basis of eyewitness expert testimony. The traditional basic literatures have provided a great deal of the underlying theory about basic psychological processes that are assumed to characterize human nature. Eyewitness researchers embrace the basic theory and may describe it to a jury. Basic perceptual, cognitive, and social psychology, presented as an overview or framework for more specific discussion, passes a test of scientific validity insofar as it reflects the general, empirically driven understanding of an entire scientific discipline.

If eyewitness experts only presented basic theory or made specific statements and predictions about eyewitness behavior solely on the basis of basic theory and findings, criticisms based on applicability and reliability gaps would be on the mark. The basic findings, though reliable, may not apply to eyewitnesses. However, eyewitness researchers have developed a subdiscipline of eyewitness psychology. They have gone on to hypothesize about how basic theory is relevant to eyewitness psychology and proceeded to test their hypotheses within paradigms (e.g., staged crimes, involving-and-unusual interpersonal interactions with never-before-seen strangers) designed in terms of the “eyewitness situation.” It is the findings out of these paradigms and the theoretical inferences from them about eyewitness psychology that form the proper focus of expert testimony.

Are these findings reliable, and are inferences from them generalizable? It would seem that a number of them are, depending on how they are presented to the jury. Let us consider, for illustration, a subset of the "reliable enough" findings (for a thorough discussion of the much larger totality of eyewitness research, see the recent volumes by Cutler & Penrod, 1995, and Ross, Reed, & Tolia, 1994). In doing so, it is useful to keep in mind Wells's (1978) distinction between *system* and *estimator* variables. The former are variables controllable by the police and the legal system; the latter include the witnessing conditions and other uncontrollable factors that, if known, help estimate the likelihood of eyewitness accuracy.

Lineup instructions. One system variable is lineup instructions. Instructions are biased if the administrator of a lineup does not inform witnesses that they can opt to identify no one or directly instructs witnesses to pick the "one who did it." Compared to unbiased instructions (i.e., those explicitly including a lineup rejection option), biased instructions consistently have been found to increase the frequency of false identifications of a culprit look-alike when the culprit is not in the lineup (e.g., Cutler, Penrod, & Martens, 1987; R. C. L. Lindsay et al., 1991). Biased instructions have been found to increase false identifications in quite realistic staged crime studies (e.g., Malpass & Devine, 1981), even when subject-witnesses, while attempting the identification, believe the crime they had witnessed was real and that their identification could have genuine consequences for the person they picked (e.g., Hosch, Leippe, Marchioni, & Cooper, 1984). In one such study, biased instructions led to false identifications passed on to an investigating police officer by over 95% of 140 witnesses to a staged crime (Luus & Wells, 1994b). The biased instructions effect is interpretable in terms of compliance and obedience pressures operating on the witness. An authority figure says something that sounds like an "order" (e.g., "pick which one did it") or implies that he strongly prefers a certain answer. Caught up in an unusual situation, the witness complies with the real or implied command, not unlike the participants in Milgram's (1974) obedience studies and in field experiments on compliance gaining (e.g., Cialdini, 1987).

Lineup fairness. The level of similarity between the suspect and the foils defines lineup fairness. A consistent finding is that, as lineup fairness decreases, the likelihood of a false identification increases (e.g., R. C. L. Lindsay & Wells, 1980; Lindsay et al., 1991). This relationship involves the tendency for people to make comparative memory judgments—choosing the lineup member who most resembles their memory trace of the culprit they saw, and perhaps sensing the match is strong because of the contrast with the foils. If the witness infers that the suspect stands out because the police officer wishes that that person be chosen, compliance pressures may also operate. (Wells, 1993).

Suggestive questioning and postevent information. The influences on memory and memory reports of suggestive questioning and postevent information are similarly well-established and girded by sound theory. In the 1970s, Loftus reported provocative demonstrations of how postevent verbal information contained in memory-probing questions affect reported memory for the original event. In one series of studies, Loftus, Miller, and Burns (1978) presented subject-witnesses with a slide show depicting a pedestrian-car accident in which the car was seen at a yellow yield sign. During questioning, some participants were asked whether another vehicle had passed the car while it was stopped at the yield sign. Others were asked the same question, except that "stop sign" replaced "yield sign" in the question. Still

later, appreciably more participants in this latter, misled condition than in a no-prior-question control condition mistakenly reported seeing a stop sign. In another set of studies, Loftus and Palmer (1974) were able to influence witnesses' memories of the speed of a car in a filmed crash scene by varying the verb in a pointed question. Verbs connoting greater impact (e.g., "smashed" vs. "hit") were associated with higher estimates of speed.

Even accurate cues in an interrogation can influence memory. Christiaansen, Sweeney, and Ochalek (1983), for example, found that weight estimates of the culprit varied significantly depending on whether the person was said to be a dancer or a truck driver. Dozens of studies, involving slide-show, video, and live exposure to events, visual and spoken stimuli, adults and children, and many other variations, have consistently observed that postevent information embedded in questioning distorts memory reports (Weingardt, Toland, & Loftus, 1994). Various accounts of these effects have been offered, including memory alteration through blending or overwriting (Loftus, 1981; Loftus & Hoffman, 1989), inaccurate monitoring of memory sources (D. S. Lindsay, 1994), and social demand to choose what the questioner implied from among poorly remembered alternatives (McCloskey & Zaragoza, 1985). Although there is debate among accounts in terms of what specifically happens to memory itself, it seems quite clear that memory reports to which witnesses commit themselves are influenced.

Other, mostly estimator, variables. Recent narrative and meta-analytic reviews of the relevant research on two estimator variables yielded compelling conclusions that (a) witnesses are better able to accurately identify members of their own race than members of a different race, especially if the witnesses are White and the targets Black (Anthony, Copper, & Mullen, 1992; Bothwell, Brigham, & Malpass, 1989), and (b) facial identification accuracy improves as duration of exposure to the face increases (Shapiro & Penrod, 1986). And, in what is a critically important relationship to be discussed later, reviews confirm that inaccurate (in identification or recall) witnesses commonly are no less confident in their memory than are accurate witnesses (Bothwell, Deffenbacher, & Brigham, 1987; Wells & Murray, 1984). Not on the Kassin et al. list (1989; see Table 1), but worth noting because of their less-than-intuitive nature, are two other increasingly validated findings. Field and laboratory studies consistently demonstrate that the accuracy of verbal descriptions of once-seen suspects or other targets are uncorrelated with accuracy of later facial identifications (e.g., Pigott, Brigham, & Bothwell, 1990; Wells, 1985). Furthermore, judging from a meta-analytic review of numerous recent experiments, it appears that the accuracy of facial identifications is less when the target brandishes a weapon than when he or she does not (Stebly, 1992; see also Cutler et al., 1987).

Advances in reducing false identifications and assessing likely accuracy. The effects of lineup instructions and lineup fairness can be described to a jury to allow them to better gauge the odds that a misidentification occurred in the case at hand. These findings can also be used by the police to improve their methods so as to reduce the likelihood of sending to trial a victim of mistaken identification. Eyewitness psychology is in the process of pursuing other discoveries that may serve the same end of improving the validity of pretrial assessment of eyewitness accuracy. This would decrease the need for expert testimony; at the same time, sufficiently reliable findings, under certain circumstances, could be presented by an expert witness as part of a description of what constitutes good testing of eyewitness

memory and how an accurate eyewitness generally behaves. One such finding seems sufficiently established as reliable. *Sequential lineups*, in which one lineup member is presented at a time, consistently have been found to yield fewer false identifications (but not fewer accurate identifications) than simultaneous lineups in which all lineup members are presented in a single visual field (Cutler & Penrod, 1988; R. C. L. Lindsay & Wells, 1985; Sporer, 1993). This is because sequential lineups encourage witnesses to make absolute judgments (i.e., compare a single face in a lineup to their memory of the culprit's face) instead of comparative or relative judgments (i.e., decide which of several faces most resembles the memory trace; cf. Wells, 1984b). A second development, which cannot yet be deemed "reliable enough," is the growing evidence that accurate positive identifications generally are made faster and more spontaneously than false-positive identifications (Dunning & Stern, 1994; for a review, see Sporer, 1994).

In summary, on matters of reliability, a number of eyewitness research findings score highly. They are replicable, the opposite findings (as opposed to simply null findings) are seldom reported, the research has high internal validity, and the settings and measures often have high mundane realism in terms of approximating certain eyewitness situations. A strong argument can be made for reliability and validity. However, what about applicability and generalizability—matters of external validity involving whether the findings are likely in the real witness world?

Generalizability to Eyewitness Situations

There are several grounds on which to question generalizability, including (a) reliance on college-student samples; (b) lower involvement of research eyewitnesses in terms of personal meaning, trauma, motives, and consequences of testimony; (c) focus on mainly one kind of witness—the uninvolved bystander—who is relatively uncommon; and (d) effect sizes that are either small or incalculable in extrapolating to a real crime. There is a kernel of truth to all of these complaints, and the expert is obligated to offer any or all as caveats when they apply to the factors in the case at hand. Yet, a closer look at these matters suggests that they are only small causes for reservation.

College students as witnesses. Wells (1993) has pointed out that a growing number of studies have compared student and nonstudent eyewitnesses and seldom found differential effects of manipulated variables (see, e.g., Loftus, Levidow, & Duensing, 1992; O'Rourke, Penrod, Cutler, & Stuve, 1989). In terms of absolute levels of recall and recognition accuracy, it seems that, if anything, college students are more accurate than others (e.g., Loftus et al., 1992).

Involvement. Witness involvement has several dimensions, not all of which have been, or can be, empirically addressed. What has been studied, though, is encouraging regarding generalization. A number of studies have now been done in which the ruse of a staged crime is carried on until *after* the eyewitness gives a memory report and attempts an identification. Some include elaborate trappings involving campus security and other police officers, very official-looking mug shots and photospreads, and dire consequences for the culprit if apprehended. Like other simulated event studies, these studies tend to find rather high rates of false identification (cf. Wells, 1993).

Real world crimes and their aftermath, of course, create motives (e.g., avoidance of retribution, motivation to get one's attacker "locked up") and psychological states

(e.g., trauma, fear, resentment) that cannot be studied experimentally. Not much is known about how such factors influence memory itself, and when one or more of them are dominant witness qualities, the eyewitness expert probably should admit that the research addresses eyewitness memory that is "untainted" by exceptional witness motives or emotions and that caution is warranted regarding generalization to cases in which these qualities are suspected.

Unrepresentative bystanders and realism. Is eyewitness research generalizable only to the limited case of "unaffected bystander" witnesses (Yuille, 1993)? First, if this is true, it poses no problem for applying the research findings to cases that do involve such witnesses. In absolute numbers, these cases are not all that rare. According to Goldstein, Chance, and Schneller (1989), about 78,000 trials in the United States in 1987 were based primarily on eyewitness evidence. If only 10% of these studies involved "unaffected bystanders," the number would approach 8,000. The percentage is probably higher, and the numbers do not include cases that do not reach the courtroom.

Second, there have been staged crime studies in which witnesses are at least mildly victimized. Compared to bystander witnesses who were in the same situation and saw the same event, victim-witnesses show either similar (Hosch & Cooper, 1982) or higher (Kassin, 1984) rates of false identification. Consistent with this latter finding—which is the opposite of what one would expect if heightened involvement is somehow associated with better memory—Hosch et al. (1984) found that victim-witnesses were more likely than bystanders to succumb to biased lineup instructions than were bystander-witnesses. Victimization, it seems, may affect witnesses' arousal and attention in ways that can be deleterious to forming strong memory for the culprit's face.

Finally, field and archival studies of bystander and mildly victimized witnesses to real crimes do not generally contradict the results of laboratory studies. For example, Tollestrup, Turtle, and Yuille (1994) studied police records of the reports and identifications of victims and witnesses of fraud and robbery. They found effects and trends involving estimator variables (i.e., exposure duration, weapon focus, vantage point, and retention interval) and memory measures (i.e., estimations of height, weight, and age, and amount of details remembered) that resemble the findings of laboratory studies of bystander witnesses. Yuille, Davies, Gibling, and Marxsen (1994) studied police officers' recall of a role-played incident and found that, consistent with extrapolations from laboratory findings, recall memory declined significantly over a 12-week period and less was remembered about a highly stressful (vs. less stressful) incident. Cutshall and Yuille (1989) reported that, of 17 witnesses to actual nonviolent bank robberies, the majority made false identifications when researchers asked them to identify the known robber from robber-present and robber-absent photospreads.

In general, across the levels of realism that have been studied, there is considerable consistency in how various factors affect eyewitness memory. Although much more research is necessary, it is important to note that there is practically no evidence of what could be called *realism effects*, that is, different effects in more and less "real" contexts of critical variables on memory reports and identifications. There is no documentation of a relationship that has been well-established in laboratory paradigms reversing in direction in a more involving and realistic eyewitness setting.

Psycholegal scholars who push the realism factor more typically stress that

memories of real witnesses to very striking, violent, or disturbing crimes tend to be better, in terms of accuracy and completeness, than what staged-crime laboratory studies typically find (Cutshall & Yuille, 1989). Provided a critical mass of research showing this accumulates, it would be good news indeed, and eyewitness experts should then feel properly obligated to share it with fact finders. However, several points are worth making about the limited research suggesting that real-and-striking-is-better (in memory). First, even if this is accurate, it is a main effect observation that does not invalidate the reliable findings of how system and estimator variables may alter memory rate. Second, the number of studies of memories for "striking" crimes is small; thus, the sample of crimes is small and possibly unrepresentative. Comparatively, are the crimes longer? More dramatic? We do not know yet. Third, real eyewitness events are not all striking ones. Possibly, only a minority of eyewitness events qualify as such. Fourth, we do not know what is responsible for any greater accuracy. One study involved interviews with multiple witnesses to a shooting incident several months after the incident (Yuille & Cutshall, 1986). To assess accuracy, the research interviews were compared with police reports and other accounts of the crime. High accuracy was observed. Was it due to witnesses talking to one another, to rehearsal and rumination, or to the good job by the police of taking witness accounts? It is hard to tell from the research so far. Indeed, it is possible that striking events engage a different form of memory processing than do less striking events; then again, they may simply elicit more elaborate and extensive processing and rehearsal of the same nature (see, e.g., Brown & Kulik, 1977, and Neisser, 1982, for a similar debate concerning "flashbulb memories"). Fifth, lineup identifications are not (or cannot) be obtained in most of the real-crime research. Identification is *the* (legally) critical variable and the focus of a great deal of what an expert witness talks about in court. The high levels of recall say nothing about whether identification rates would also be high, given that accuracy of facial descriptions are not related, and memory for peripheral details may be negatively related, to identification accuracy (Wells & Leippe, 1981).

A sixth and final point about striking events is that they may not be as perfectly memorable as some have billed them. One kind of striking memory is what has been termed a *flashbulb memory*, an unusually detailed, vivid, and lasting recollection of the situational, temporal, and interpersonal circumstances in which one learned of an exceptionally dramatic and important event (e.g., the assassination of President Kennedy). Recent research casts some doubt on the completeness and permanence said to characterize flashbulb memories. Neisser and Harsch (1992), for example, had college students give written descriptions of their experiences of hearing about the space shuttle Challenger explosion the morning after the disaster occurred in early 1986 and again 2½ years later. The more than 2-year-old memories, on average, bore very little resemblance to the fresh, presumably accurate accounts of where the students were, what they were doing, who they were with, and so on, despite often being offered with a high level of certainty.

Effect size. Some effects on eyewitness accuracy are reliable but somewhat small on average (e.g., cross-racial identification bias). The average size of any variable's effects on accuracy, moreover, cannot really be ascertained within the context of any single case and the myriad factors that might characterize it. There is no reason that straightforward discussion of relative effect sizes in research and the indeterminacy of effect sizes in specific cases cannot be presented to jurors by an

expert witness. The essential points to get across to triers of fact have to do with identifying factors that may have been present in the case, describing what the effects of these certain factors can be, and dispelling any misconceptions jurors may have. Responsible discussion of effect sizes fits well and appropriately with these probabilistic assertions.

Juror Knowledge Is Insufficient

The valid science of eyewitness psychology offers some reliable, conceptually clear knowledge. Is it all common sense that jurors know already? The data suggest otherwise. In a scientific survey, Deffenbacher and Loftus (1982) found that substantial percentages of college students and nonstudents with and without prior jury experience did not give the correct answer on a number of multiple-choice items regarding variables associated with eyewitness accuracy. Some of the items in which at least half of the respondents gave the wrong answer were among those discussed earlier as reliable (e.g., cross-racial bias in identification, weapon focus, and, most glaringly, the confidence-accuracy relationship). Similar evidence of low knowledge was evident in responses to multiple-choice questions administered by Yarmey and Jones (1983). Respondents including law students, legal professionals, students, and nonstudent citizens commonly did not identify the known relationships between eyewitness accuracy and such variables as confidence, weapon presence, prior identification from a mug shot, status of the witness (e.g., police are no better at identification than "untrained" witnesses), and other factors. More recently, Kassin and Barndollar (1992) found that, on the 13 findings deemed "reliable enough" by 70% or more of the experts in the Kassin et al. (1989) survey, significantly fewer student and nonstudent citizens than experts agreed that the finding was accurate. The disputed (by citizens) findings involved the confidence-accuracy relationship, lineup fairness, lineup instructions, exposure time, the forgetting curve, showups, and cross-racial identification. For four of the findings, a majority of the sample disagreed! Finally, R. C. L. Lindsay (1994; R. C. L. Lindsay, MacDonald, & McGarry, 1990) has reported data from several surveys of citizens and lawyers (see also Brigham & Wolfskeil, 1983) that are highly consistent with these results.

All the surveys clearly support the conclusion that much of what is known about eyewitness memory—that eyewitness experts might talk about in court—is not common sense. Later in this article, further evidence for this conclusion is presented. A caveat is in order here, however. Even though the evidence indicates that eyewitness research findings are not common sense, they still may seem intuitive to an audience once presented. After learning the outcome of an experiment (e.g., Slovic & Fischhoff, 1977) or some other event (e.g., Leary, 1982), people are more likely to see the outcome as predictable than they are to predict the outcome in advance. Because of this well-established hindsight bias or "knew it all along" effect, it is reasonable to expect that eyewitness expert testimony will continue to be disallowed on grounds that it is within the ken of juror knowledge, even if the *Daubert* guidelines are applied. Judges who must evaluate its helpfulness to jurors may conclude that eyewitness research findings are both scientifically reliable and commonsensical. Proposals for testimony therefore must speak explicitly about hindsight bias.

Experts Provide Relevant Information, Jurors Judge Credibility

The objection that an eyewitness expert usurps the jury's role by giving an expert opinion of witness credibility has largely been abandoned by the courts (Woocher, 1986). Responsible expert testimony ordinarily does not include an opinion on the "ultimate issue" of whether the eyewitness is credible or accurate. Instead, as social framework testimony, it explains what scientists know about how factors that may have been operating in the case at trial increase or decrease the likelihood of eyewitness accuracy. Jurors are left to decide if and how the information applies to the case and to use it in making their own judgments of eyewitness credibility. However, even if the expert were to make an ultimate issue statement, the law does not automatically define this as invading the province of the jury. Woocher (1986) points out that Rule 704 of the Federal Rules of Evidence (1975) was enacted specifically to abolish the ultimate issue rule, by observing that an expert's opinion can be helpful information to a jury.

Impact Is an Empirical Question, But Relevance Is the Real Issue

The idea that eyewitness expert testimony may prejudice jurors against the eyewitness rather than compel them to carefully apply new knowledge in their own evaluation of the eyewitness may be the strongest objection to such testimony. Although this worry seldom is presented as the sole reason for declaring it inadmissible (Woocher, 1986), it seems clear that many judges fear that expert testimony simply will overwhelm jurors; that, in effect, an eyewitness is no match for an academic-psychologist listing factor after factor that decreases eyewitness accuracy. This indictment of jurors' skills seems to contradict another common argument for prohibiting expert testimony—that jurors are cognitively sophisticated enough to evaluate and integrate diverse perspectives and make sound decisions on their own. In addition, it is interesting that worry about the impact of eyewitness experts has been only in the direction of too-ready belief and deference to the expert. It is not inconceivable that anti-intellectual attitudes, the image that professors live in ivory towers that limit their understanding of the real world, and psychological reactance resulting from "some psychologist trying to tell me I don't know how memory works" also operate as counterforces to ready acceptance. Most psychologists who have tried to explain their work on a "soft" research topic to a nonpsychologist (especially a poorly educated one) know that skeptical, amused, disbelieving, and condescending reactions are not uncommon. This matter is deserving of research attention (e.g., posttrial surveys of jurors in cases involving an eyewitness expert).

The distinction between probative and prejudicial is a fine one. A certain type of evidence may consistently mitigate in favor of a not-guilty verdict, but that does not make it prejudicial. It depends on whether the evidence is strong enough to merit such impact, and that is a subjective question. Given that a good deal of eyewitness research is reliable and generalizable, it *should* carry weight in cases in which it is brought in. Given that jurors are apt to be unaware of the influence of eyewitness factors, expert testimony that teaches them *should* appropriately also influence them. Furthermore, given that expert testimony is limited to cases that hinge primarily on limited eyewitness accounts, there *should typically* be an impact of expert testimony. Given these "shoulds," it is difficult to discern when, if ever, juror skepticism created by an expert goes beyond reasonable and into unfair prejudice.

The more relevant criterion of admissibility is the relevance of expert testimony. One general definition of relevance is offered by Goodman and Loftus (1992), who stated: "If the research assists the fact finder in assigning more or less weight to eyewitness testimony, we believe it is relevant" (p. 276). If the research is faithfully presented and the expert takes pains to explain its relative, probabilistic nature, it is hard to see how it could be construed as prejudicial. Perhaps fortunately, given the probative versus prejudicial conundrum, appellate courts usually have cautioned against applying a prejudicial rule to relevant testimony (Woocher, 1986).

Traditional Devices Are Not Always Effective

For a number of reasons, including data from empirical studies, cross-examination, opening and closing arguments, and judge's instructions cannot be relied on to counter mistaken eyewitness identifications. Regarding cross-examination, a number of staged-crime and videotape eyewitness studies have exposed subject-witnesses to direct and cross-examination questioning, in an effort to assess the "shakeability" of their confidence and the extent to which questioning makes their memory accuracy more detectable to jurors. These studies are described in some detail below. For the moment, it can be noted that, although confidence can be shaken (e.g., Turtle & Wells, 1988), this does not improve the detectability of accuracy (R. C. L. Lindsay, Wells, & O'Connor, 1989; Wells & Murray, 1984), which is generally low to begin with, and sometimes makes it worse (e.g., Wells & Leippe, 1981). When witnesses are briefed or coached about cross-examination, as they almost always are in an actual trial, they maintain their confidence under cross-examination and thereby sustain (or increase) their incriminating effect on jurors (Spanos, Quigley, Gwynn, Glatt, & Perlini, 1991; Wells, Ferguson, & Lindsay, 1981). The failure of cross-examination to remove the impact of a positive identification is also evident in trial simulation studies. For example, focusing on eyewitness inconsistencies in cross-examination or closing arguments sometimes reduces the credibility of an eyewitness (Berman, Narby, & Cutler, 1995), and sometimes it does not (Leippe & Romanczyk, 1989; R. C. L. Lindsay, Lim, Marando, & Cully, 1986).

These failures of cross-examination to cancel the impact of incriminating eyewitness testimony are rooted in large part in the psychology of the appraisal of eyewitness testimony and the extraordinary potency of eyewitness testimony as it is delivered in the courtroom, factors that are discussed in the following sections. They also may be related to attorney credibility problems associated with cross-examination that would not similarly plague an eyewitness expert witness. There are even more fundamental problems with cross-examination, however. First, its goal commonly is to destroy belief in the eyewitness, not to illuminate his or her likely level of accuracy. As a result, tactics (in cross and direct examination) are used that almost inevitably lead to altering and making salient exactly what can most mislead jurors: eyewitness confidence. Instead of focusing jurors on a reasonable assessment of the physical and social conditions of witnessing and identification, cross-examination is likely to direct attention to less diagnostic factors involving witness demeanor, trivial details, and peripheral inconsistencies (cf. Berman et al., 1995). In this way, at its best, cross-examination may remove the risk of believing a mistaken identification and replace it with a heightened risk of discounting an accurate identification. Second, even if lawyers choose to home in on potentially important witnessing and memory testing factors during cross-examination, there is little

reason to expect them to home in on the *right* factors. As already noted, there is evidence that lawyers, like people in general, lack sufficient knowledge about eyewitness testimony. Moreover, given their job descriptions, lawyers can be expected to make selective, self-serving use of what they do know (or think they know). Finally, in many cases, there are no glaring memory inconsistencies or omissions to point to, and one side's "good view" is the other's "brief look." Cross-examination cannot provide jurors with the knowledge to evaluate witnessing and identification conditions; expert testimony can.

For many of these same reasons, it seems that summations presenting two interpretations of the same eyewitness(es) are just as unlikely as cross-examination to ensure appropriate weighting of eyewitness testimony. Finally, judge's cautionary instructions also are no panacea. Current versions are inaccurate, overly broad, and easily lost amid a lengthy presentation of other closing instructions. Moreover, research described later suggests instructions do not effectively teach jurors about how to evaluate eyewitness testimony (e.g., Cutler, Dexter, & Penrod, 1990; Greene, 1988).

Beyond the Old Arguments: A Rationale for Expert Testimony

Two of the basic ideas advanced so far are that eyewitness research findings are not commonsensical or well-known and that existing trial procedures are not cure-alls of mistaken convictions of misidentified defendants. These assertions are related to broader considerations of the psychology of evaluating eyewitness reports and the social psychology of trials. An examination of these, focusing on the behavior and cognition of eyewitnesses, jurors, lawyers, and, to a lesser extent, police officers, reveals strong psychological bases for concluding that eyewitness expert testimony is not only appropriate, but needed in certain circumstances to improve the likelihood of a valid jury decision.

Jurors' Evaluation of Eyewitness Testimony

Considerable research has been carried out on jurors' reactions to eyewitness testimony, using a number of methodologies (see Wells, 1984a). As already seen, questionnaire surveys consistently indicate that prospective jurors have incomplete and incorrect understanding of certain variables that are importantly related to eyewitness accuracy. Researchers also have presented individuals with descriptions of staged-crime scenarios or with the actual witnesses of staged crimes and asked them to predict eyewitness accuracy. This research has yielded a consistent set of findings that complements and extends the survey findings, creating an across-methodologies convergent validity.

The assumption of credibility: Affirming behavior received by a positive stereotype. Much of the research converges on the notion that people begin with the assumption that adult eyewitness memory is quite accurate. For example, a mock-trial study by Loftus (1974) found that the percentage of guilty verdicts increased from 18 to 72 when a single prosecution witness was written into a brief murder trial summary. A number of studies have followed up this result by having people read descriptions of staged-crime (or other event) studies. These studies consistently find that people overestimate (sometimes grossly) the percentage of witnesses who made a correct identification of the culprit in those studies (Brigham & Bothwell, 1983; Kassin, 1979, reported in Wells, 1984a). In none of these studies was an actual eyewitness seen or

heard. Thus, the generous judgments of eyewitness veracity may reflect a positive stereotype of eyewitnesses (cf. Leippe, 1994) that jurors bring with them to a trial and eventual exposure to a live eyewitness. Making a written mock-trial (i.e., eyewitness unseen and unheard) more complex with the addition of evidence for both sides (e.g., Leippe, 1985) or more balanced with the addition of evidence impugning the eyewitness (e.g., Saunders, Vidmar, & Hewitt, 1983; Weinberg & Baron, 1982) may dilute the impact of the eyewitness. Nevertheless, in the absence of other information, jurors' baseline expectation is for eyewitness accuracy.

One critical kind of "other information" is the eyewitness's own behavior—his or her observable testimony. Wells and his colleagues have studied reactions to videotaped testimony through use of a two-phase, staged-crime procedure. In this procedure, subject-jurors guess the identification accuracy of subject-witnesses who previously observed a staged theft, gave testimony about it in a cross-examination format, and attempted to identify the thief from a photospread. Subject-jurors watch a videotaped testimony of either an accurate or inaccurate witness and then judge that witness's accuracy and confidence. Across a number of studies, it has been observed that subject-jurors are unable to discriminate between accurate and inaccurate witnesses. The percentages of witnesses judged to be accurate typically run substantially higher than the actual accuracy rate obtained in the witnessing phase of the study and also higher than the 50% rate created by presenting accurate witnesses to half the subject-jurors and inaccurate witnesses to the other half. As a result, inaccurate witnesses have been judged accurate by anywhere from 40% to 80% of the subject-jurors (Lindsay, Wells, & Rumpel, 1981; Wells et al., 1981; Wells & Leippe, 1981; Wells, Lindsay, & Ferguson, 1979). These findings occur even when experienced defense and prosecution lawyers question the witnesses with the intent of "revealing" accuracy and when the witness provides an on-camera (in court) identification (Lindsay et al., 1989).

Reliance on the miscue of confidence. Besides suggesting an overbelief in eyewitnesses, these results suggest how overbelief carries over from a generalized stereotype to an individualized judgment. In the two-phase studies, the judged confidence of the witness is invariably highly correlated with belief in the witness (Wells & Murray, 1984). Regardless of the actual accuracy of the witness, factors that heighten (e.g., briefing about how to handle cross-examination) or lower (e.g., grilling about inaccuracies in memory for peripheral details) the appearance of confidence strongly influence the appearance of accuracy. The strong positive relationship between perceived confidence and perceived accuracy is not limited to judgments of the identification accuracy of witnesses to a staged theft. It has been observed in studies using quite a different, interactive memory event and judgments about the overall believability of both adult and child witnesses (Leippe, Manion, & Romanczyk, 1992). In trial simulations, mock-jurors' ratings of witness credibility and verdict preferences are reliably influenced by manipulations of nonverbal and verbal expressions of confidence (e.g., Cutler, Penrod, & Stuve, 1988; Whitley & Greenberg, 1986). The potency of confidence as an accuracy cue concurs with survey research cited earlier showing that a large percentage of college students, nonstudent adults, police officers, and attorneys believe that confidence is a strong indicator of accuracy.

Taken together, the unseen-witness and seen-witness studies suggest a "one-two

punch" quality to judgments of eyewitness behavior. Sight unseen, the eyewitness is expected to be accurate. Then, when seen or heard, confident, assured seen testimony cinches this expectation, further heightening the credibility ascribed to the witness. This "cinching" effect of witness confidence is critical. Indeed, a further exploration of what can be called the "confidence miscue" suggests it is perhaps the single strongest argument favoring the admission of eyewitness expert testimony.

To begin with, confidence is common. One might be tempted to argue from some mock-jury data that jurors are not especially overly credulous of eyewitness testimony. Some studies, after all, find that cases that prominently feature a prosecution eyewitness do not attract a large percentage of guilty verdicts (e.g., Leippe, 1985). Many of these studies, however, use written trial summaries or make no special effort to project a confident eyewitness. Eyewitness confidence is cloaked, and thus eyewitness impact is muted. It is the confidence—a quality of behavior (testimony) on which attention is focused—that seems critical, and, in actual trials, confidence is probably the norm. Lawyers coach confidence, police officers inform witnesses they "chose the right guy," witnesses may become increasingly confident through commitment and repeated memory rehearsal (Leippe, 1980), and prosecutors may avoid pursuing trials for cases that depend on shaky eyewitnesses. Because inaccurate confident witnesses are as readily believed as accurate confident witnesses, the "problem is not a question of false identifications per se but rather one of *credible or persuasive* false identifications" (Luus & Wells, 1994a, p. 360, emphasis added).

A second ominous admixture to the confidence miscue is that confident-but-wrong witnesses are not uncommon. Jurors' reliance on confidence would not be a major problem if confident-but-wrong witnesses were a rare commodity. However, two decades of eyewitness research has demonstrated rather convincingly that, in situations in which false or foil identifications are plentiful, they often are made with as much confidence on average as are correct identifications (e.g., Leippe et al., 1978; Malpass & Devine, 1981). Between 1980 and 1987, three reviews summarized eyewitness memory research in terms of the correlations reported between accuracy of facial identifications and the postidentification confidence asserted by the identifiers. These reviews conclude that the accuracy-confidence relationship is, on average, a weak one and statistically nil in the majority of studies (Bothwell et al., 1987; Deffenbacher, 1980; Wells & Murray, 1984). The accumulation of many more studies since the mid-1980s has not altered the conclusion that witness confidence commonly is only a weak indicator of identification accuracy (see, e.g., Kassir, Ellsworth, & Smith, 1994; Wells, 1993).

The nondiagnosticity of confidence (coupled with jurors' beliefs to the contrary) is especially unfortunate given that confidence in one's false identification is not an oddity in the real world or easily doused by a sobering reality. Loftus (Loftus & Ketcham, 1991; Weingardt et al., 1994) has documented a number of real cases of mistaken identification in which witnesses persist in believing their memories despite such contrary evidence as a confession by someone other than the person they identified. As Goodman and Loftus (1992) observed, these real cases "reveal the commitment and attachment of eyewitnesses to faulty memories even when faced with clear, incontrovertible evidence of their mistaken judgment" (p. 268). These reports of undying devotion to a false memory are not at all surprising from a social-psychological standpoint. An eyewitness identification, primarily, is a belief.

Should we expect beliefs formed about intense, involving, and highly personal matters (e.g., a real crime in which one is victimized) to be held less strongly and persistently than beliefs formed about more distant, low-involvement matters (e.g., a theft staged in a laboratory)? Hardly. In fact, research on social beliefs and attitudes suggests just the opposite. People are especially resistant to changing their beliefs when they have publicly expressed them, when they knew in advance that expressing such beliefs could have negative consequences, and when the belief is closely tied to personal values and self-identity (see, e.g., *Zimbardo & Leippe, 1991*).

More generally, it is hard to downplay the validity or significance of the conclusion that eyewitness confidence is often unrelated or only weakly related to eyewitness accuracy. One downplaying account has it that there will be an appreciable accuracy-confidence relationship if the conditions of witnessing and memory testing are relatively good or "optimal" (*Bothwell et al., 1987; Deffenbacher, 1980*). Indeed, confidence-accuracy correlations tend to be significant when conditions of witnessing are good (e.g., long exposure to the target face, a distinctive face, low arousal; *Brigham, 1990; Cutler & Penrod, 1989; Shapiro & Penrod, 1986*), especially when the correlations are computed only for witnesses who made a positive identification (e.g., *Brigham, 1988; Sporer, 1993*). Even under these most pristine conditions, though, the correlation only tends to be about .40. More important, however, the toughest eyewitness cases—and those most likely to involve an eyewitness expert—are precisely those in which witness accuracy is questionable because witnessing conditions were poor. Moreover, any modest relationship that might exist between accuracy and confidence is likely washed out when lawyers coach confidence and police officers inform eyewitnesses of the "correctness" of their identification. *Luus and Wells (1994b)* were able to substantially increase or decrease staged-crime witnesses' self-reported confidence in their false identifications, simply by telling them that a co-witness had identified the same or a different person. The new levels of confidence persisted even when witnesses were subsequently told the co-witness feedback was wrong and were evident to subject-jurors who watched witnesses' videotaped testimony to the police. This research dramatically illustrates the malleability of confidence. And most eyewitnesses' travels through the police and court systems are likely to be replete with "confidence malleators."

The legal-system experiences of eyewitnesses generally increase the separate paths that memory accuracy and confidence-in-memory may take (*Leippe, 1980*). For example, through repeated questioning and testing, some memory distortions are bound to occur, and the cognitive operations that create them are outside the conscious awareness of the witness (cf. *Nisbett & Wilson, 1977b*). The very same procedures may also serve to increase confidence in the memory, to the extent that the witness's sense of public commitment to his or her statements grows. Similarly, subtle pressure to make an identification may simultaneously force a false identification and promote the self-attribution that "if I picked him, he must be the one who did it to me." Indeed, biased lineup instructions only push people into false identifications they stick with to the extent that the identification is *not* attributed to the police pressure.

Another troublesome quality of the confidence miscue is that confidence usually cannot be removed in the courtroom. The eyewitness testifies under the friendliest of circumstances (i.e., direct examination by a supportive lawyer) before an opposing

attorney has a chance to shake that confidence. Initial attitudes and first impressions—especially those bolstered by preexisting stereotypes—are well-known to persist in the face of contradictory evidence (e.g., Jones, Rock, Shaver, Goethals, & Ward, 1968; Lord, Ross, & Lepper, 1979). Confident testimony shaped by supportive direct questioning may inoculate jurors against the weaker confidence expressed under cross-examination. For example, impressed by the witness's initial assured demeanor, jurors may discount the later appearance of reduced confidence by making a situational attribution for the nonconfident behavior: It must be due to the aggressive questioning tactics of the cross-examiner. However, what if the opposing attorney simply pointed out to the jury that confidence and accuracy are unrelated? This seems an unlikely tactic, because it would serve only to impugn *that* attorney's confident witnesses and cast into doubt the meaning of the reduced apparent confidence created by the attorney's cross-examination.

Insensitivity to accuracy differences. The two-phase, staged-crime procedure consistently has found that subject-jurors are largely unable to discriminate between witnesses who made accurate and inaccurate identifications. After observing a subject-witness's responses to 15–20 direct and cross-examination questions, fact finders typically do no better than chance at guessing identification accuracy. In another set of studies involving exposure to videotaped testimony, Leippe et al. (1992) found evidence for a modicum of sensitivity to accuracy differences in witnesses' overall recall of "what happened." The level of sensitivity was slight, however, and probably easily eliminated by the confidence-shaping experiences encountered by witnesses on the way to the courtroom. Although there is some encouraging work on how people might be trained to be somewhat sensitive to valid accuracy cues (e.g., Dunning & Stern, 1994; Leippe, 1994; Leippe et al., 1992; Schooler, Gerhard, & Loftus, 1986), it is unclear whether such training could yield more than a limited improvement in discernment and whether it could ever be extended to one-time fact finders such as jurors. At present, the best evidence suggests that jurors have little inherent ability to "read" eyewitness accuracy. Instead, they read confidence and wrongly infer accuracy.

Insensitivity to witnessing-testing information. Information about the eyewitness and his or her witnessing and memory-testing circumstances that should come out in a trial would seem a better bet for constructive use by jurors. Yet the evidence here also is pessimistic. Lindsay et al. (1986), for example, had mock jurors listen to an audiotaped burglary trial in which it was revealed that the lighting during witnessing was either very good (broad daylight) or very poor (60 ft [18.3 m] from a streetlight late at night) and that duration of exposure to the thief was either very brief (less than 5 s) or extensive (more than 30 min). These variations in witnessing conditions had no effect on the proportion of jurors who rendered guilty verdicts. Other audio or videotaped mock-trial studies have observed a similar juror numbness to information about such factors as the retention interval between witnessing and identification, whether the culprit is disguised, whether a weapon is present, and whether the crime is exceedingly violent (e.g., Cutler, Penrod, & Dexter, 1989; Cutler et al., 1988; R. C. L. Lindsay, 1994).

The outcome is not much improved by having jurors view the testimony of witnesses who have watched criminal events under widely differing conditions. Lindsay et al. (1981) showed videotapes of the testimony of subject-witnesses who had observed a staged theft under conditions that yielded either 33%, 50%, or 74% accurate identifications. Subject-jurors' predictions of accuracy, in fact, were

sensitive overall to these differences in witnessing conditions. However, the level of sensitivity was considerably less than the percentages warranted, and it was evident only among subject-jurors who watched relatively nonconfident witnesses.

There are two plausible reasons for insensitivity to witnessing conditions (Leippe, 1994). First, fact finders may be aware that certain conditions do influence perception and memory, but underestimate the magnitude of such influence. Indeed, in a series of surveys, R. C. L. Lindsay (1994) found that college students and other prospective jurors reported high awareness that certain witnessing variables (e.g., retention interval, attention to and duration of crime, illumination) could affect eyewitness accuracy when they were explicitly asked to consider those variables. Yet, this seems lost on the same population when one (high or low) level of the same variable is revealed in a trial. A second reason for insensitivity is that eyewitness testimony itself is not much affected by witnessing conditions. Certain factors may influence memory without witnesses being aware of the influence and, therefore, without altering their confidence (cf. Leippe, 1980).

Insensitivity does not stop at conditions of witnessing. Mock jurors also have been found to be insensitive to conditions of identification, including biased lineup instructions, similarity of lineup foils to the suspect, and lineup size (Cutler et al., 1988, 1990; R. C. L. Lindsay, 1994; Wells, 1985).

As a bottom line, there is no research demonstrating that jurors take sufficient account of witnessing-testing factors that have reliable effects on eyewitness accuracy, even when those factors are prominently featured in the description of the crime that unfolds in a trial. Thus, similar to results concerning how testimony itself is judged, these results are quite discouraging about whether jurors can validly judge memory accuracy beyond more than a very modest degree. The difficulty of the task lends support to the extreme view that cases that rely exclusively on a single eyewitness (i.e., no corroborating extra-eyewitness evidence and no extra eyewitness) simply should not be prosecuted. Some research, however, suggests that a less extreme corrective may be of some help. This involves taking steps in the courtroom to direct jurors' attention away from witness behavior and getting them to focus on witnessing and identification conditions. This might be accomplished, of course, with expert psychological testimony. As is seen below, the only mock-jury studies that have found any appropriate juror reliance on witnessing or testing conditions have been those that have included expert testimony in some form (e.g., Cutler, Penrod, & Dexter, 1989), although this outcome has not emerged in several other studies (e.g., R. C. L. Lindsay, 1994).

Underappreciation of social influences. One reason jurors are so (inappropriately) influenced by witness confidence and are insensitive to witness accuracy and conditions correlated with accuracy is that they do not appreciate that an eyewitness identification is, in effect, a belief. As assertions of a belief, or a set of beliefs, eyewitness memory reports are susceptible to social influence processes such as conformity, compliance, suggestion, commitment, and motivation. To be sure, would-be jurors seem to show some appreciation of the effects of suggestive questioning and of attitudes and expectations on memory when directly asked about such factors (Kassin & Barndollar, 1992). It remains to be seen, however, if jurors spontaneously think about eyewitness memory in terms of social-psychological variables, or of an identification as a belief that can be shaped and strengthened as opposed to a "feeling-of-knowing" that simply emerges like an emotional response.

The preceding discussion has painted a dismal picture of the ability of people to

judge by themselves the accuracy of an eyewitness. Within and outside the context of a trial, whether they are more or less "real" or "live," eyewitnesses evoke the same nondiscriminating responses dominated by impressions of confidence. The consistency in the data is such that the old standby argument that "it may be different in real trials" seems to be wishful thinking indeed.

Jurors' Processing of the Whole Trial When There Is an Eyewitness

One counterargument to the conclusion that "jurors need help" begins with the assertion that few, if any, prosecution cases that make the courtroom are based solely on the testimony of a witness with a bad view or a "bad attitude" (e.g., overly committed to retribution). The argument continues that jurors have other evidence besides the eyewitness testimony to consider and, in fact, do generally base their decisions on the overall weight of all evidence (cf. Visser, 1987). The first assertion is highly debatable, judging from my consulting experiences and those reported by others (e.g., Loftus & Ketcham, 1991). The second assertion, that in a "whole trial" context jurors usually give eyewitness evidence an appropriate weight, is also shaky. In fact, it is conceptually and empirically debatable not only when the eyewitness evidence is outright weak, but also when such evidence is simply contestable.

Trust in the wisdom of juries within the status quo legal system is not trust well placed. Research on jury decision making indicates that juries (a) have difficulty ignoring, and keeping out of their decision-making calculus, information conveyed in nonevidential conjectures, pretrial publicity, and inadmissible evidence (Kassin & Wrightsman, 1988); (b) often misconstrue the reasonable doubt criterion (Kagehiro & Stanton, 1985); (c) have difficulty understanding complex cases (Horowitz & Bordens, 1988); and (d) may use suboptimal "satisficing" reasoning in deciding verdicts (Kuhn, Weinstock, & Flaton, 1994). Moreover, rather than correct the processing biases of individual jurors, the likely effect of deliberation is for widespread individual biases to coalesce into a bias-consistent verdict, given the documented pressures toward majority rule (Davis, 1980; Kalven & Zeisel, 1966) and polarization (Hastie, Penrod, & Pennington, 1983; Myers & Kaplan, 1976) in jury-room group dynamics. The biases that characterize reactions to eyewitness testimony certainly appear widespread in the jury population and thus are likely to persist through an actual trial and real deliberations.

All this is not to bury juries. However, juries should also not be praised or overly defended (e.g., Bermant, 1986) against the critiques of social scientists. As Kassin and Wrightsman (1988) have cogently argued, a good portion of the blame for the insufficiencies of juries falls on judiciary rules, regulations, and traditions concerning the conduct of a trial, many of which are not "user-friendly" in terms of helping juries reach legally sound verdicts. For example, pattern jury instructions continue to be abstruse, and no correctives are in place to keep jurors from hearing inadmissible evidence and witness responses to badly misleading questions. Kassin and Wrightsman recognized a number of the problems discussed here about eyewitness testimony and lamented that expert testimony, or some forum for communicating psychologically sound advice about eyewitness memory, has not become commonly accepted by the legal system.

Eyewitness testimony as a highly visible behavior is highly capable of having more of a direct effect on jurors than it deserves. Testimony is salient and often dramatic. Thus, it attracts attention and is memorable. Behaviors with such qualities

tend to have more influence on lasting impressions than do less attention-getting behaviors (Taylor & Fiske, 1975). Mock-trial studies have found that when eyewitnesses make themselves especially salient by using colorful, vivid language (Reyes, Thompson, & Bower, 1980) or showing impressive memory for trivial details of the witnessed event (Bell & Loftus, 1989), their impact on jurors' judgments is even greater.

Besides the direct effects afforded by its salience, eyewitness testimony can have important indirect effects. To appreciate this, consider first that criminal trials have a more or less fixed set of stages. The prosecution gives its opening arguments first and also (after the defense offers or waives until later its opening arguments) presents its case—its evidence and witnesses—first. Judging from a great deal of research on attitudes, social cognition, and impression formation, this ordering of evidence presentation may give the prosecution a "primacy advantage" (e.g., Miller & Campbell, 1959). In essence, if a strong, information-based attitude or opinion is formed through initial exposure to or consideration of one side of an issue, cognitive processing is such that new, opinion-discrepant data are interpreted in terms of the initial opinion or attitude. A belief structure or framework is established by the initial information, and further processing becomes biased in that discrepant information is more readily counterargued and supportive information more readily assimilated into the framework, strengthening it further (e.g., Lord et al., 1979; Nisbett & Wilson, 1977a; Wells, Wrightsman, & Miene, 1985).

Belief structures take on added relevance to the courtroom given Pennington and Hastie's (1986, 1992) "story model" of juror decision making. The story model emphasizes that jurors are not handed a straightforward synopsis of the criminal event. Rather, as the trial proceeds, they must piece together the often disjointed information and evidence presented in the verbal statements of the attorneys and the various witnesses. Jurors construct a story of "what happened" and eventually attempt to match the features of their story to the verdict categories presented to them. Story construction begins early and involves updating as new information is received. Thus, early and potent influences on story construction potentially affect how later information is interpreted and worked into the story. In addition, information that is more salient and attention grabbing should be more likely to influence the emerging story.

Eyewitness testimony has strong story-shaping qualities. It comes early in the trial; it actually tells a story, and it is an active, assertive behavior that attracts and holds attention. This may explain mock-juror studies in which eyewitness testimony has influenced how the jurors evaluate evidence other than the eyewitness testimony itself. Research suggests that an eyewitness can be discredited (and his or her direct impact on verdicts reduced) by compelling evidence that the eyewitness could not have seen what he or she claims to have seen (Hatvany & Strack, 1980; Saunders et al., 1983; Weinberg & Baron, 1982; but see Cavoukian, 1980, and Loftus, 1974, for contrary results). The research also suggests, however, that even discredited eyewitness testimony still may influence jurors in a direction consistent with its intended impact, by biasing the interpretation and weight given to other evidence. In a series of mock-jury studies, Saunders et al. (1983) found that prosecution evidence was seen as stronger and defense evidence as weaker when the case included a discredited prosecution witness compared to when the case included no prosecution witness. In a conceptually related fashion, Spanos, Myers, DuBreuil, and Pawlak

(1992-93) found that, compared to when there was no eyewitness, the presence of eyewitness testimony in a mock murder trial was associated with greater belief in the probative value of physical and polygraph evidence offered by the prosecution. Leippe and Romanczyk (1989) obtained suggestive evidence that circumstantial prosecution evidence is perceived as stronger when eyewitness testimony is part of the prosecution package.

These results make sense from the story model perspective. Eyewitness testimony, which essentially presents a story, increases the vividness and imaginability of that story (cf. Hatvany & Strack, 1980) and thus has substantial impact on the story jurors construct for themselves. Processing of other evidence, at least in part, involves trying to work that evidence into the story. As a result, jurors may put a "spin" on the evidence that coheres with the "spin" of the eyewitness side of the case. It is interesting that, in a study by Pennington and Hastie (1992), mock jurors were more likely to dismiss testimony that was inconsistent with most preceding trial evidence when the trial format facilitated (vs. inhibited) story construction. Thus, the more coherent and vivid the story, the more likely the story directs processing of further evidence. Prosecution eyewitnesses—testifying early under positively framing direct examination—can have much impact on the construction of a plausible and persisting juror story.

In some ways, the effects of eyewitness testimony resemble the "sleeper effect" in persuasion (Hovland & Weiss, 1951). Some attempt to discredit the eyewitness is made in most trials. A sleeper effect occurs when discrediting serves to eliminate the immediate impact of a message, but, after a time delay, the message does have an effect because the "discounting cue" (discrediting information) but not message content has been forgotten (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). This delayed increase in persuasion is especially likely when the message is highly persuasive in the absence of the discrediting, the discrediting follows the message, and the discrediting is not as memorable as the message itself. These three conditions are strikingly apt characterizations of eyewitness testimony. The implications, of course, are that, to most effectively constrain the direct and indirect effects of contestable-but-confident eyewitness testimony, it should be challenged or otherwise commented on before it is delivered or such commentary should be made saliently and with memorable authority. Expert testimony, as will be seen, could fit this bill.

In summary, it appears that eyewitness testimony has proven beyond a reasonable doubt to be both difficult to judge and potentially overly influential.

Fairness, Due Process, Federal Rules, and Detectives in Court

Beyond (and also because of) jurors' inevitable difficulties with eyewitness evidence, one can mount rather strong arguments for eyewitness expert testimony on the basis of fairness and due process considerations. First, and most generally, a defendant's right to expert testimony is implied by the so-called "helpfulness" standard laid out in the Federal Rules of Evidence, Rule 702. The rule is that, "[i]f scientific, technical, or otherwise specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise." Given the evidence that jurors' understanding of eyewitness memory falls both short and off the mark of what expert psychologists

know and can tell jurors, it follows that forbidding expert testimony would deprive an accused of the right to have "relevant" evidence presented on his or her behalf and, in fact, to a fair trial in which triers-of-fact are maximally able to try the facts accurately.

A second factor is that due process protections against suggestive or coercive identification procedures enacted by the Warren Court in the 1960s can be woefully ineffectual. The right to counsel during a postarrest lineup identification, for example, does not extend to photospread lineups in which the accused is not physically present. In addition, Doyle (1989) has observed that the courts seldom suppress all identifications because the initial identification procedure was suggestive (e.g., a showup), even though a false first identification can be the memory on which a subsequent identification under nonsuggestive conditions is based. Thus, in many cases, a defense lawyer has little choice but to seek admission of the suggestive identification in order to argue that it tainted subsequent ones. This undoing of one due-process right runs a large risk that the jury will be unconvinced by the defense's line of argument. The argument may require the forceful authority of an expert (on an almost factual matter of procedure, by the way), and the right to such expert testimony arguably falls within the Due Process Clause regarding lineup evidence as articulated in *Manson v. Brathwaite* (1977).

A final, related due process consideration is that the prosecution always has an "expert" available and legally entitled to testify that the procedures used in obtaining an identification were not suggestive or biased. This is the detective who secured the identification. A substantial imbalance exists if the defense is prevented from presenting rebuttal testimony from someone with at least equal stature and presumed expertise.¹ Indeed, admission of expert testimony on only one side of a contestable piece of evidence is readily construed as prejudicial.

Learning From an Expert: Effects on Police and Prosecutors

Wells (1986) has suggested that police officers take notice when eyewitness expert testimony is admitted in a criminal trial. In turn, if the testimony addresses system variables, the police may learn something and improve the methods they use in obtaining eyewitness evidence. They also may be motivated toward improvement as a means of avoiding courtroom criticism of their work by experts. Gradually, the use of methods that are distorting, suggestive, coercive, inefficient, and otherwise invalid should decline in favor of psychologically sound and fair procedures (e.g., in constructing lineups, questioning witnesses, etc.). Wells argued that such indirect effects of expert testimony had probably already begun to occur, judging from his informal survey of police detectives. Doyle (1989) has had an even stronger impression, opining: "The most egregiously dangerous end of the spectrum of identification practices has been drastically pruned by increased police professionalism and court scrutiny" (p. 138). Doyle identified the Warren Court's decisions on lineups, suggestion, and due process as a primary cause of this, but it seems safe to assume that psychological testimony that is instructive about the "how-to's" of fair and sensitive eyewitness investigation has also had an effect.

Positive indirect effects of easier admission of eyewitness expert testimony may extend beyond the police and system variables. District attorneys and other

¹I thank Gary Wells for pointing out this often overlooked fact.

prosecutors may hesitate more in bringing questionable eyewitness cases to trial. A backward glance at past cases involving expert testimony may foster in attorneys more discriminating attitudes about eyewitness memory, an outcome that survey research suggests would be corrective (Brigham & Wolfskeil, 1983). A forward glimpse at the prospect of an opposing expert may compel downward adjustment of the likelihood of gaining a conviction with a weak eyewitness-based case. This outcome is positive in that it would spare citizens the monetary expense (in taxes) of a trial and the expense to their safety of backed-up court dockets that promote plea bargaining, lengthy bail releases, and other conditions that may contribute to higher crime rates. Those would-be defendants who are innocent are spared the horror of false accusation and an agonizing trial on which their freedom hinges.

We have now explored in detail whether there is a need for eyewitness expert testimony. The conclusions are threefold. First, research is consistent in indicating that, in general, jurors need help evaluating eyewitness testimony. Second, considerations of fairness and due process suggest that defendants accused mainly through an identification have a right that expert testimony be heard in their trials. Third, the mere admissibility of expert testimony may indirectly reduce jurors' need for it by encouraging better police identification procedures and greater attorney discrimination regarding eyewitness testimony. In the next section, the question of whether expert testimony can directly help jurors is addressed, through a review of mock-trial research.

Research on the Effects of Expert Testimony About Eyewitnesses

There have been at least a dozen experimental tests of the effects of eyewitness expert testimony, and at least four experiments on the effects of commentary by judges informed by psychological research. These studies vary considerably on a number of dimensions, including level of mundane realism, mode of presentation of evidence and testimony, extent to which the eyewitness testimony constituted a large and salient portion of the case or the case stimulus materials, and whether mock-jurors deliberated. In addition, the content of the expert testimony varies in these studies, both qualitatively and quantitatively. This variation is a virtue if, across variations, there are consistencies in the effects of expert testimony. Whatever the case, these studies are worth examining in some detail, as they provide the only empirical basis for expectations about how juries will be affected by an infusion into the courtroom of scientific information about eyewitness testimony.

The research is divided here into three categories on the basis of how and in what context the eyewitness testimony is presented. It can be presented as part of a brief, written trial summary, in a visual medium outside of a trial context, or in a visual medium as part of an entire trial.

Expert Testimony Studies That Present Written Case-Trial-Eyewitness Materials

Three sets of studies have presented mock jurors with a written trial summary, a procedure that places these studies the most distant from real cases on a dimension of mundane realism. Loftus (1980) presented college students with a brief written description of an actual assault case that included summaries of the crime, the four points that constituted the prosecution's case, and the defense case. In a no-expert-testimony condition, the defense summary consisted solely of the defendant's denial,