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Expert Testimony on Eyewitness Memory and Identification

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Eyewitness evidence is critical for solving crimes, and it is often the sole source of evidence for determining who the perpetrator is. However, it has been estimated that each year in the United States, approximately 4,500 wrongful convictions occur based on mistaken eyewitness identifications (Penrod & Cutler, 1999). Studies consistently report that eyewitness misidentifications are the leading cause of erroneous convictions (Huff, 1987; Huff, Rattner, & Sagarin, 1996), and eyewitness evidence has been the major source of evidence used to convict innocent people who were later exonerated based on forensic DNA (Scheck, Neufeld, & Dwyer, 2000; Wells et al., 1998). Yet ironically, jurors tend to find eyewitness testimony especially compelling, despite the fact that: (a) the conditions under which most eyewitnesses observe a perpetrator are strongly associated with low subsequent identification accuracy; (b) mock jurors typically cannot accurately discriminate between accurate and inaccurate eyewitness identification testimony (Lindsay, Wells, & O'Connor, 1989); and (c) typical jurors misunderstand how memory works in general, and how specific factors affect the reliability of eyewitness identification (O'Toole, Cox, Easterly, & Schmechel, 2005). Psychologists who research eyewitness memory are aware of the factors

associated with accurate versus inaccurate identification, and some of these psychologists testify in courts of law as eyewitness expert witnesses, to inform juries about these factors. The purpose of this chapter is to summarize the role that these eyewitness experts play in the courts.

The legal community today has a relatively favorable view of psychological research on eyewitness identification, but this has not always been the case. In his book, *On the Witness Stand*, Munsterberg (1908) presented research demonstrating the unreliability of eyewitness perception and memory, and argued that scientific psychology had much to offer the legal community on this topic. Attorneys and legal scholars were outraged with Munsterberg's suggestion that legal decisions should in any way be influenced by psychological research. For example, Moore (1907) wrote, "Among the legal profession it is familiar learning that experiments are valuable only when the conditions are fairly identical with those attending the occurrence under investigation.... Imagine him [Munsterberg] butting in with his so-called scientific experiments to appraise the testimony of a witness" (p. 127).

For most of the 20th century, there was a deep-rooted tension between legal procedures and scientific methods, and attorneys and judges were not keen on changing this. In fact, the records of American courts indicate that psychological research was not cited, nor did psychologists provide expert witness testimony, until the 1950s (Loh, 1981), and even then it was on topics of mental disorders, pretrial publicity, and civil rights, not on eyewitness memory. Fulero (1993) identified several early cases in which attempts to admit eyewitness expert testimony were rejected by the courts. In the cases of *Criglow v. State* (1931) and *People v. Collier* (1952), it was the trial courts' opinion that eyewitness expert testimony would "invade the province of the jury."

Since the mid-1980s, appellate courts have been more receptive to admitting eyewitness expert testimony (e.g., *People v. McDonald*, 1984; *State v. Chapple*, 1983; *State v. Moon*, 1986), and consequently, there has been a sharp increase in the number of trials in which eyewitness expert witnesses have testified. There are several reasons why the courts have become more open to eyewitness expert testimony. Some of the changes have been rooted in transitions in the legal field. First, there has been a shift in the legal criteria for admitting expert testimony from earlier requirements that the testimony must provide the jury with "appreciable help" (Ninth Circuit Federal Court of Appeals in *United States v. Amaral*, 1973) to more recently requiring that the expert testimony simply "assist" the jury (Rule 702 of the *Federal Rules of Evidence*, 1975). Second, it is

now well established that errors in eyewitness identification are responsible for more cases of wrongful conviction than all other causes combined (Wells et al., 2000). In particular, more than 100 convictions have been overturned based on postconviction DNA evidence, and more than 75% of these are cases in which the initial convictions were based on eyewitness evidence (Scheck et al., 2000; Wells, 2001; Wells et al., 1998).

Some changes within the field of psychology have also aided in the admissibility of eyewitness expert testimony in courts. First, it is now clear that the information on eyewitness memory provided in expert testimony has "general acceptance" among psychologists (Kassin, Tubb, Hosch, & Memon, 2001). The "general acceptance" of the explanatory theory presented by an expert has been one of the criteria for admitting expert testimony since the classic case of *Frye v. United States* (1923), commonly called the *Frye* test. The acceptance of psychological research in legal contexts has been aided by the fact that there is a clear consensus within the field of psychology regarding what the acceptable standards of scientific proof are. Second, sufficient reliable evidence has accumulated over the past 30 years that we now have a much clearer understanding of how the personal and situation-specific variables operate with respect to crime (Cutler & Penrod, 1995). Finally, researchers have determined that some methods of assessing eyewitness memory are likely to promote incomplete or inaccurate recall or false identifications of innocent suspects (Wells et al., 2000). The high quality and the quantity of this research has been such that the U.S. Department of Justice has issued a set of national guidelines for the collection of eyewitness evidence in criminal cases (Technical Working Group for Eyewitness Evidence, 1999).

THE ROLE OF THE EXPERT WITNESS IN CASES INVOLVING EYEWITNESS MEMORY AND IDENTIFICATION

At the most general level, all expert witnesses attempt to educate the jury about a specific domain that is sufficiently beyond common experience that expert opinion could at least assist the trier of fact. There are numerous evidence codes that define and limit the scope of expert testimony in general, and eyewitness expert witnesses more specifically. In this chapter, I do not review these evidence codes, but rather focus on giving a general sense of typical eyewitness expert testimony. As a caveat, I need to say up front that no one really knows how many individuals testify as eyewitness expert witnesses, what the span of their qualifications is, or

what the range is in the content of eyewitness expert testimony. I know about 10 psychologists who regularly testify as eyewitness expert witnesses, and I am familiar with the thrust of their testimony. These are academics with impressive publication track records in the field of eyewitness memory and identification. In this section of the chapter, I rely on what I know to be the content of the testimony of these individuals in discussing typical eyewitness expert testimony.

It is useful to begin this discussion by mentioning three things that eyewitness expert witnesses do not do. First, eyewitness expert witnesses rarely testify for the prosecution. This is not because they are prodefense; it simply reflects the way the courts work. If the prosecution considers their eyewitness case to be a strong one, they do not think that they need an eyewitness expert witness to tell the jury this, and if they have an eyewitness case without strong eyewitness evidence, they do not prosecute it. Thus, eyewitness expert witnesses are typically retained by the defense. Second, eyewitness expert witnesses, like all expert witnesses, cannot "speak to the ultimate issue." In other words, they cannot be asked about or comment on whether they think that the defendant is the real perpetrator; doing so would "invade the province of the jury." An eyewitness expert witness can address factors that were present in the case at hand and address how these factors affect eyewitness accuracy, but, it is up to the attorney—typically during closing argument—to make the links between these general factors and specific eyewitnesses.

Third, eyewitness expert witnesses do not test or interview eyewitnesses to determine whether they are reliable witnesses. In fact, an eyewitness expert witness is not permitted in court to comment directly on the circumstances or reliability of any eyewitness. The closest they can get to this is to respond to questions about a hypothetical situation that (of course) approximates the facts of the case at hand. This type of expert testimony is what Monahan and Walker (1988) called "social framework testimony" to distinguish it from other types of social science expert testimony that involve presenting the jury with data that were collected on the litigating parties.

Eyewitness Expert Pretrial Consultation

There are two aspects of the work done by an eyewitness expert witness: pretrial consultation and testimony. Ideally, an eyewitness expert witness gets involved in a case at the early stages, to assist the attorney in seeking relevant information prior to the trial, specifically at the preliminary hearing. However, the reality is that attorneys, especially public defenders, are

constantly overworked and often do not get assigned a case until after the preliminary hearing. As a result, they give their eyewitness expert about as much time as they have to prepare for trial—frequently, only a couple of weeks. At this point, attorneys and the experts typically discuss the case on the phone so that: (a) the attorneys can determine whether eyewitness expert testimony is likely to work with their defense strategy and (b) the experts can determine whether there is a basis in the psychological research literature to question the reliability of the eyewitnesses in the case.

Once expert witnesses are retained on a case, they conduct the pretrial consultation. As part of the pretrial consultation, the experts review the relevant case materials—the police reports, investigators' reports, preliminary hearing transcript, and all lineup materials. The experts then prepare the attorney to present the eyewitness evidence to the jury. This involves, for example, consulting with the attorney to discern where there may be critical gaps in the information available about each eyewitness. In reviewing the case materials, the expert also assesses: (a) the conditions under which each eyewitness observed the perpetrator and (b) each eyewitness' identification history. The identification history is the timeline that maps out what types of identification tests were presented to each eyewitness and what the eyewitness' response was to each. From these data the eyewitness expert determines whether there may have been suggestive or biasing influences on the identification of the defendant.

After pretrial consultation, the attorneys decide whether to retain the eyewitness expert to testify in the trial, based on whether they think that the expert can advance their strategy for the case. The eyewitness expert then works with the attorney to prepare for testimony. Courtroom testimony is necessarily in a question-and-answer format; it is not an open-ended lecture. Thus, the attorney needs to be informed regarding the areas about which to question the expert. The pretrial work of an expert witness can be very effective preparing an attorney to present eyewitness evidence to the jury. Less than half of all cases on which I am retained as an eyewitness expert actually go to trial, and this appears typical from my conversations with other eyewitness experts. The majority of these cases are settled prior to trial, and a written declaration by an eyewitness expert frequently plays a role in the pretrial resolution of these cases.

Eyewitness Expert Trial Testimony

When a case does go to trial, most of the substance of the eyewitness expert testimony pertains to psychological factors that affect the accuracy

of eyewitness memory. A brief summary of the research on these factors is discussed in the next section of this chapter. However, an effective expert witness does not just discuss each of these factors and present the relevant research. Rather, a successful expert witness tries to persuade the jurors and actually get them to think more accurately about eyewitness evidence. Jurors tend to overrely on eyewitness evidence; they find it overly compelling to hear an eyewitness say, for example, "That's the guy. I'll never forget his face!" The task of an eyewitness expert is to persuade the jury to evaluate the eyewitness evidence more analytically, so they can more accurately evaluate its reliability in light of the eyewitness circumstances in the case at hand.

This is done first by dispelling the myth that memory functions like a video camera. Eyewitnesses typically talk about memory as if they are just playing back a mental video-tape that has a picture of the perpetrator etched on it, and this fosters jurors' belief that memory works this way. Although this metaphor may be a useful one for talking about memory recall, it does not reflect how memory really works and, in fact, leads to many misconceptions about eyewitness memory. An important part of getting jurors to evaluate eyewitness evidence more accurately is dissuading them from using this mental model of eyewitness memory. One way of achieving this is by providing them with some every day memory examples. It is useful, for instance, to ask jurors to think about the appearance of a U.S. penny, the vitamin pill that they take everyday, the front of their house, the waitress who waited on them most recently in a restaurant, or, for a more salient event, the minister who married them or their delivery room nurse. When jurors attempt any of these memory tasks, they quickly realize that what they remember is not just a mental photograph of what they viewed. Expert testimony, like good teaching, involves not just dishing out information, but actually transforming the way people think about a domain.

Another challenge for an eyewitness expert is to convince the jury that eyewitnesses can make a misidentification even if they are extremely confident. Jurors have a difficult time reconciling a not-guilty verdict with a victim or witness who exclaimed, "That's the guy. I'll never forget his face!" Jurors also often think that casting a not-guilty vote invalidates the victim's terrifying experience, and no juror wants to be in that position.

A common way for the expert witness to deal with this challenge is to present the research indicating that there is only a modest correlation between eyewitness confidence and eyewitness accuracy (Sporer, Penrod, Read, & Cutler, 1995). Most eyewitness experts are scientists and as good

scientists we usually try to convince people by presenting them with good data. However, it is useful for expert witnesses to remember that, for good or for bad, jurors do not typically think like scientists. For most people, a good example is more persuasive than a library full of good data. Fortunately, the postconviction DNA exoneration cases now avail to us more than a hundred good examples of cases in which confident eyewitnesses have been dead wrong.

THE SCIENTIFIC FOUNDATION FOR EXPERT TESTIMONY ON EYEWITNESS MEMORY AND IDENTIFICATION

As mentioned earlier, the bulk of the testimony by an eyewitness expert witness is focused on psychological factors that affect the accuracy of eyewitness memory and the research support for these effects. A great deal of research in the past several decades has focused on this topic. Excellent reviews of the research on eyewitness memory factors are available in a meta-analysis of facial identification studies by Shapiro and Penrod (1986), and more recently in the *Annual Review of Psychology* chapter by Wells and Olson (2003). Here I simply summarize these findings and discuss how eyewitness expert witnesses present this research to jurors.

The factors that affect the accuracy of eyewitness memory and identification have been categorized as estimator variables or systems variables. Estimator variables, on which there is a great deal of research, are factors that effect eyewitness memory and identification and are not under the control of the criminal justice system. Systems variables, examined relatively more recently, are factors related to eyewitness identification that can be under the control of the criminal justice system.

The Confidence-Accuracy Relationship

When eyewitnesses testify in court, they usually express a high level of confidence in their identification of the defendant. After all, most eyewitnesses have selected the defendant from at least one, and usually multiple, prior lineups. Before presenting testimony about the estimator variables and systems variables that are relevant in a specific case, it is important to open jurors to the possibility that even a highly confident eyewitness can still be inaccurate. It makes sense that people would be more likely to trust the identification of a highly confident eyewitness than one expressing low confidence, but is confidence a useful indicator of accuracy?

There have been a sufficient number of studies on the accuracy-confidence relationship that conclusions about this relationship are now based on meta-analyses of these studies. The most recent of these meta-analyses was reported by Sporer et al. (1995). Across the 30 studies included in their meta-analysis (total sample size = 4,036), the accuracy-confidence relationship was $r = .29$, which, although statistically significant, accounts for only 8% of the variance. This means that if you think of the pie chart representing all factors that affect eyewitness identification accuracy, eyewitness confidence alone can account for 8% of this pie. This is typical of the low accuracy-confidence relationship reported in a number of other meta-analyses.

However, a stronger accuracy-confidence relationship was reported by Sporer et al. (1995) when they limited their analysis only to those individuals who chose to make an identification, $r = .41$. This finding is relevant to the courtroom situation because the eyewitnesses who testify in court are those who have chosen someone from a prior lineup, showup, or some other type of identification test. But how can an eyewitness expert help jurors understand what a .41 correlation between accuracy and confidence means? Wells, Olson, and Charman (2002) suggested that one way to think about this correlation is to draw the comparison to a similar relationship for which the correlation is in this same range. Using U.S. Department of Health and Human Services data, they reported that the correlation between a person's height and gender is .43. Thus, if we assume that eyewitnesses make accurate identifications about 50% of the time, encountering a highly confident mistaken identification would be about as common as encountering a tall female or a short male. Presenting the accuracy-confidence relationship to a jury in these terms would help diminish the sanctity of a highly confident eyewitness.

In addition, witness confidence is malleable. For example, it has been reported that repeatedly questioning eyewitnesses inflates their confidence without affecting the accuracy of memory (Shaw, 1996). Also, if, after making an identification (correct or incorrect), eyewitnesses are provided feedback that they are good witnesses, their subsequent confidence is inflated (Wells & Bradfield, 1999). By the time witnesses testify in court, they have typically been questioned multiple times, and it would not be surprising to learn that along the way, they have either inadvertently or directly received feedback that they "picked the right guy." The high confidence expressed in their trial testimony might simply reflect the effect of these factors that were experienced after the crime.

Estimator Variables

Once an eyewitness expert has convinced the jury that even highly confident eyewitnesses can be wrong, it is then appropriate to discuss the estimator variables associated with accurate and inaccurate identifications. The estimator variables can be divided into the characteristics of the witness and the characteristics of the observed event itself.

Characteristics of the Witness. The strongest witness characteristic associated with identification accuracy is whether the eyewitness and the perpetrator are of the same or different race or ethnicity. In a recent meta-analysis of the cross-race face-identification research, Meissner and Brigham (2001) reported a robust effect of this factor such that same-race faces are identified more accurately than cross-race faces. The age of the witness also affects witness accuracy. Elderly adults and very young children are less reliable eyewitnesses than young adults. There are also a few personality factors associated with the accuracy of eyewitness memory (see Shapiro & Penrod, 1986, for a review). However, the research on these personality factors is not likely to be presented in eyewitness expert testimony because eyewitness experts do not test or interview the actual eyewitnesses in a case, and are not permitted to comment directly on the reliability of any witness.

Characteristics of the Observed Event. Characteristics of the observed event play a more important role than witness characteristics in determining eyewitness accuracy. At the most basic level, the issue is simply, how carefully did the eyewitness observe the perpetrator to begin with? If the eyewitness never saw the perpetrator clearly to begin with, regardless of what occurs afterward, the reliability of the identification will be in doubt: garbage in, garbage out. Some of the relevant factors here are: (a) the duration of the observation (perpetrators observed only briefly are less likely to be correctly recognized afterward); (b) the type of attention given to the perpetrator (was the attention of the eyewitness drawn to the perpetrator or did the eyewitness not know the importance of the event until after the perpetrator had left the scene); (c) the distance and available lighting; (d) the presence or absence of a weapon (weapon focus reduces eyewitness identification accuracy); (e) the presence of multiple suspects or other sources of distraction; (f) whether the perpetrator was wearing a hat, sunglasses, or other disguise; (g) the

distinctiveness of the perpetrator's appearance (distinctive-looking individuals are less likely to be misidentified); and (h) the stress that the eyewitness may have experienced while observing the perpetrator (the details of traumatic events are less accurately retained in memory).

In presenting this information to jurors, it is often useful to suggest that the defendant surely looks like the perpetrator; that, after all, is why the eyewitness selected the defendant from the lineup. But the question is, did the eyewitness ever see the perpetrator clearly enough to know that it is the defendant? Having an eyewitness expert systematically unpack the specific conditions under which the perpetrator was observed makes it more likely that the jurors can answer this question accurately.

Systems Variables

Systems variables are factors related to eyewitness identification that can be under the control of the criminal justice system, basically, how and when the identification ability of each eyewitness was tested. Jurors are rarely familiar with how the identification test procedures affect the reliability of eyewitness identification. The testimony of an eyewitness expert regarding systems variables can be especially useful for educating jurors regarding potential fallacies in eyewitness identification. The research on the role of specific systems variables has been reviewed in detail elsewhere (Wells et al., 1998; Wells & Olson, 2003). A summary of these findings is presented here with an emphasis on how this information can be convincingly presented to jurors by an eyewitness expert.

It is important for jurors to understand that just because an eyewitness has selected the defendant from a photographic lineup or a live lineup, it does not necessarily mean that the eyewitness actually remembers the defendant from the scene of the crime. Why is this? This is because a lineup is simply a multiple-choice test, and like all multiple-choice tests, the test can be fair and unbiased or unfair and biased. For example, if I want to assess whether you know which endocrine gland produces the hormone insulin, I might give you a test in which the options are: (a) the parathyroid glands, (b) the adrenal glands, (c) the pancreas, (d) the pituitary gland, (e) the thyroid. Alternatively, I might give you a test in which the options are: (a)the lungs, (b) the heart, (c) the pancreas, (d) the brain, (e) the intestines. If you had selected the answer, the pancreas, from the first set of options, I should be more impressed that you really know that the pancreas is the endocrine gland that produces insulin, because all five options are actually endocrine glands. In the

second set of options, all you need to know to get the right answer is that the lungs, heart, brain, and intestines are not endocrine glands. This is quite different from actually knowing that the pancreas is the specific endocrine gland that produces the hormone insulin.

Giving an example like this is likely to change the way jurors think about eyewitness evidence and convince them that they should not be too impressed that an eyewitness has selected the defendant from a lineup until they actually hear the eyewitness' original description of the perpetrator and then see what the lineup looks like. Drawing a parallel to a photographic lineup procedure, all faces in the lineup should match the description given by the eyewitness (Luus & Wells, 1991) and be presented in photographs of similar quality and style such that extra attention is not drawn to the suspect (Buckhout, 1974).

In an attempt to optimize systems variables that impact eyewitness identifications, Wells et al. (1998) suggested three other rules for conducting lineups. First: "The person who conducts the lineup or photospread should not be aware of which member of the lineup or photospread is the suspect" (p. 627). In other words, a double-blind procedure should be used in conducting identifications. There is a large body of research on experimenter expectancy effects, demonstrating that individuals who have expectations about the performance of others (e.g., teachers, researchers, judges, police officers) communicate these expectations to their subordinates (e.g., students, subjects, jurors, witnesses) using a host of nonverbal cues, and actually affect the performance of these individuals (Rosenthal, 1976).

An example that communicates this point to jurors is the story of Clever Hans the horse (cf. Wozniak, 1999). Clever Hans and his trainer traveled around Germany in the early 20th century impressing people with Hans's ability to do mental arithmetic. People from the audience would pose arithmetic questions, and Clever Hans would answer each question by scratching the dirt with his hoof the correct number of times. Systematic research studies concluded that in fact, Clever Hans was not doing mental arithmetic; he was simply picking up nonverbal cues from the audience as to when he should stop scratching the dirt. The audience members had expectancies, and Clever Hans learned to read these expectancies and respond accordingly. If Clever Hans the horse can read nonverbal cues sufficiently accurately to produce correct answers to arithmetic questions, surely an eyewitness can read the nonverbal cues expressed by an investigating officer administering a lineup and respond accordingly. How can this prejudicial systems variable be resolved? The

answer is simple. The officer asked to present the lineup or showup to the eyewitness should be one who does not know who the suspect is.

The second rule suggested by Wells et al. (1998) to optimize systems variables that impact eyewitness identifications is: "Eyewitnesses should be told explicitly that the person in question might not be in the lineup or photospread and therefore should not feel that they must make an identification. They should also be told that the person administering the lineup does not know which person is the suspect in the case" (p. 629). This rule follows from the research findings that eyewitnesses are less likely to false alarm and identify an innocent suspect if they are told that the perpetrator may not be in the lineup (Parker & Ryan, 1993). Prior to attempting an identification, most witnesses are read an admonition in which they are told, "You should not conclude or guess that these photographs contain a picture of the person or persons who committed the crime. You are not obligated to identify anyone. It is just as important to exonerate the innocent as it is to identify the suspect." However, this information is often nullified by the fact that officers phone the eyewitnesses after having had no contact with them for weeks or even months. The officer may tell the eyewitness or simply imply that a suspect has been apprehended, and that their appearance at a lineup or showup is requested. If eyewitnesses expect that the police "have the guy," they approach the lineup with the intention to pick someone. Consequently, eyewitnesses are likely to select from the lineup the individual who looks most like the perpetrator, even if they do not actually recognize that individual from the scene of the crime. Under these conditions, a misidentification is likely to occur. Without the testimony of an eyewitness expert, jurors are not likely to realize the potential harm caused when eyewitnesses approach a lineup with the expectation that they are going to pick the closest match.

The third rule suggested by Wells et al. (1998) to optimize systems variables that impact eyewitness identifications is: "A clear statement should be taken from the eyewitness at the time of the identification and prior to any feedback as to his or her confidence that the identified person is the actual culprit" (p. 635). As mentioned before, although the correlation between eyewitness accuracy and confidence is modest, the confidence expressed by eyewitnesses during testimony is the single strongest determinant of whether their identification will be perceived to be accurate. However, eyewitness confidence is malleable and can easily be affected by feedback received after an identification has been made. To minimize the potential for postidentification inflation of confidence,

eyewitness feedback should be obtained at the time that a lineup selection is made, before the eyewitnesses perceive any feedback from the officer in attendance. In discussing the accuracy-confidence relationship, an eyewitness expert can help the jury understand how to interpret eyewitness confidence appropriately and identify potential sources that may have influenced confidence malleability.

JURORS' RESPONSE TO EXPERT TESTIMONY ON EYEWITNESS MEMORY AND IDENTIFICATION

Those of us who testify as eyewitness experts want to know how real jurors' perceptions of eyewitness evidence is affected by the testimony of an eyewitness expert witness. But, as one could imagine, it is difficult to have access to real jurors to assess their perceptions. I have a study in process in which jurors, after they have delivered their verdict in a real trial, are asked to assess their opinion of the eyewitness evidence before and after the testimony of an eyewitness expert witness. They are also asked to assess which of the factors that the eyewitness expert discussed influenced their opinion of the eyewitness evidence the most. This is a very slow-moving study, because judges are reluctant to grant access to jurors, and jurors are reluctant to reveal much about their thinking in real trials.

Alternative methods have been used to assess mock jurors' responses to eyewitness expert testimony, but it is difficult to know how well these results are likely to generalize to real jurors in a real trial. Trials typically take multiple days and the testimony of an eyewitness expert typically takes 3 to 5 hours. Any procedure intended to simulate the testimony of an eyewitness expert in a real trial is not likely to deliver the dosage typical of real eyewitness testimony if it involves a condensed version of the testimony or does not avail the full audiovisual presentation of the expert. Unfortunately, most of the mock trial research used to assess the impact of eyewitness expert testimony suffers from this shortcoming in dosage.

In the early studies assessing the impact of eyewitness expert testimony (see e.g., Blonstein & Geiselman, 1990; Loftus, 1980; Maass, Brigham, & West, 1985), mock jurors read a brief (only several pages) description of a criminal case, including a summary of the prosecution's case and the defense case. They then read a brief summary of the testimony of an eyewitness expert (experimental condition) or not (control condition). Although it was generally reported that providing a summary of the testimony of an eyewitness expert decreased guilty verdicts, it is difficult to

generalize this finding to real courtroom testimony in light of the mundane realism of this methodology. As discussed earlier, a successful expert witness tries to persuade the jurors and engage them in more accurately evaluating eyewitness evidence. Expert testimony involves not just dishing out information, but actually transforming the way people think about eyewitness evidence. It would be naive to expect that teachers could be assessed by evaluating a one-page verbal summary of one of their lectures, and no one would do this. Similarly, it is naive to expect that the effectiveness of eyewitness experts could be assessed by evaluating a one-page verbal summary of their testimony.

More recently, there have been some better-executed assessments of the effectiveness of eyewitness expert testimony. This work was thoroughly reviewed by Leippe (1995). Rather than reviewing this work here, I will simply focus on two of these studies (Cutler, Dexter, & Penrod, 1989; Cutler, Penrod, & Dexter, 1989). In these studies, over 500 college students and 100 experienced jurors viewed a videotape of an armed robbery trial that included the testimony of an eyewitness to the robbery. The eyewitness evidence was strong or weak, and the confidence expressed by the eyewitness was 80% or 100%. In the experimental condition, an eyewitness expert presented elaborate testimony about factors that affect the accuracy of eyewitness memory and was cross-examined about limitations of the relevant research. The findings were that in the absence of eyewitness expert testimony, jurors' verdicts and ratings of the eyewitness's accuracy were insensitive to correlates of eyewitness accuracy. However, this was not the case when jurors heard eyewitness expert testimony. Following eyewitness expert testimony, jurors' verdicts and ratings of the eyewitness's accuracy were significantly higher under eyewitness conditions associated with higher accuracy. Presence of the expert testimony, however, did not have a significant main effect on either verdicts or ratings of eyewitness accuracy.

Together, these results suggest that eyewitness expert testimony increases jurors' sensitivity to, but not their general skepticism of, eyewitness evidence. This is an important distinction. Certainly, under some conditions eyewitnesses are likely to make accurate identifications and under other conditions they are not likely to make accurate identifications. The goal of eyewitness expert testimony is not to make jurors dubious or skeptical of all eyewitness evidence, but rather to increase jurors' sensitivity to the conditions under which eyewitness identification is reliable or not. However, it is too early to conclude whether eyewitness expert testimony in general is more likely to increase skepticism, sensitivity, or neither. Across the various studies investigating this issue, the

results have been mixed, and the methods have varied widely in degree of realism.

In the absence of eyewitness expert testimony, the primary vehicle available to attorneys to educate the jury about the reliability of eyewitness evidence is the instructions from judges, known as the Telfaire instructions. These are instructions read to the jury before they deliberate, delineating some of the factors associated with eyewitness accuracy. Several studies concluded that jurors often misunderstand or ignore judges' instructions (Glassman, Deckelbaum, & Cutler, 1989). Furthermore, Greene (1988) reported that the Telfaire instructions increased jurors' skepticism but not their sensitivity to eyewitness evidence, and Cutler, Dexter, and Penrod (1990) found that the Telfaire instructions had no effect on either jurors' skepticism or sensitivity.

In light of the fact that jurors often overrely on eyewitness evidence, yet are insensitive to whether eyewitnesses are accurate, it is important to consider some way to educate jurors about the reliability of eyewitness evidence. The Telfaire instructions, the most common vehicle for educating jurors about the reliability of eyewitness evidence, are apparently ineffective in this regard. Providing an eyewitness expert at the time of trial appears more promising, but the mundane realism of the research to date on this topic seriously constrains the generalizability of the findings to real trials.

SUGGESTIONS FOR MODIFYING THE LEGAL SYSTEM IN LIGHT OF THE PSYCHOLOGICAL RESEARCH ON EYEWITNESS MEMORY AND IDENTIFICATION

Several specific suggestions for revising the legal system follow from the research reviewed earlier. The first of these concerns how eyewitness evidence is collected, recorded, and used. Photographic and live lineups should be administered in a fair and unbiased manner following the guidelines of the Technical Working Group for Eyewitness Evidence (1999). Every time officers testify about an "identification" that they gleaned from an eyewitness in a showup or lineup, they should be questioned about the procedures followed to obtain this identification. These procedures should then be compared to those recommended in the U.S. Department of Justice (DOJ) guidelines for law enforcement on eyewitness evidence (1999), which can be downloaded from the Internet. Although the DOJ guidelines are not as extensive as those available in places such as New Jersey, Massachusetts, Minnesota, and North

Carolina, they are better than the procedures followed in most places. However, because these guidelines are rarely followed, an audio-video recording should be made of each eyewitness at each lineup so that the jury can see exactly what transpired.

Another safeguard is important in light of the finding from several studies that misidentifications are especially likely when witnesses are shown a lineup that does not contain the actual perpetrator. A suspect should not be placed in a lineup unless there is compelling evidence that that individual may actually be the perpetrator. Wells (1993) suggested a "probable cause" criterion before placing a person in what he called "lineup jeopardy." This would prevent the police from placing a suspect's picture in a lineup on a whim, or with weak evidence linking him to the crime.

Encouragingly, several states have advanced legislative solutions to reform eyewitness identification procedures. In Hawaii, Maryland, Missouri, Rhode Island, and Virginia, bills have already been introduced to the state legislature for reforms in eyewitness identification procedures. More recently, eyewitness-related legislation has been introduced in California, the District of Columbia, Georgia, Louisiana, Massachusetts, Oregon, Tennessee, Texas, and Wisconsin (Ehlers, 2005).

A second suggestion for revising the legal system follows from the research reviewed earlier. Given the general insensitivity of jurors to eyewitnesses accuracy, it is important to educate jurors about the reliability of eyewitness evidence. This is typically done with the Telfaire instructions read to jurors by judges prior to their deliberation or by eyewitness expert testimony. One suggestion for the legal system is to revise the Telfaire instructions so that they: (a) more accurately reflect the research findings; (b) convey the magnitude and the direction of the effects of the eyewitness factors described; and (c) present the factors in a more elaborated manner, perhaps with examples, to educate the jurors rather than simply conveying information. CALJIC[1] Instruction 2.92, for example, instructs jurors regarding the effect of stress on memory, that they should consider "the stress, if any, to which the eyewitness was subjected at the time of the observation." This instruction conveys neither how stress affects memory (i.e., does stress make memory better or worse?) nor how strong the effect of stress on memory is. This single sentence alone is unlikely to help jurors understand how it is that stress affects eyewitness identification accuracy. Surely more instructive jury instructions could be developed.

[1]California Jury Instructions—Criminal (California, USA).

Finally, in appropriate cases, eyewitness expert testimony should be admitted in court as it has proven to be effective in educating jurors about the reliability of eyewitness evidence. But some innovations might improve the effectiveness of eyewitness expert testimony. One of these might be establishing eyewitness experts as court-appointed rather than defense-appointed expert witnesses. Expert witnesses are more likely to be perceived as impartial if not appointed by the prosecution or the defense. Jurors are also more likely to find the expert witness trustworthy and persuasive if appointed by a higher authority, the judge, rather than either attorney. Judges have the discretion to call court-appointed witnesses at any time during a trial. It might also be helpful to have eyewitness experts testify at the beginning of a trial rather than toward the end of the trial during the defense case. Jurors might be less inclined to overrely on eyewitness evidence if they are instructed about the fallacies of eyewitness identification and memory prior to hearing the eyewitness evidence itself.

In conclusion, the recent finding that eyewitness evidence is the major source of evidence used to convict innocent people who were later exonerated based on forensic DNA has served as a call to action. This call to action has motivated both psychologists who study eyewitness memory and testify as eyewitness experts and legal professionals eager to remediate the high rate of eyewitness misidentifications. It is clear that "the need for eyewitness expert testimony is meaningful and large" (Leippe, 1995, p. 947), and the legal community today has a relatively favorable view of psychological research on eyewitness identification. Although some judges and attorneys still harbor ill will toward psychologists who "butt in" to appraise the testimony of an eyewitness, eyewitness expert witnesses are increasingly more likely to consult with legal professionals and testify in courts of law. Viewed in a historic context, the courts are moving in the right direction, especially for defendants facing dubious eyewitness evidence in trial.

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