SCIENTIFIC STUDY OF WITNESS MEMORY:
Implications for Public and Legal Policy

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The legal system relies heavily on human memory. Crime investigations, criminal trials, and many civil trials depend on memory to reconstruct critical events from the past. Getting at the "truth" is often synonymous with establishing the who, what, when, and how of some prior episode. Past events tend to leave traces, and the process of reconstructing events from the past is aided by various types of trace evidence. These traces can be physical, such as a footprint, a blood stain, or a fingerprint. An event can also leave traces of a somewhat different type, namely memory traces. Although these traces can also be said to have a physical property, in the sense that there exists a biological residue for the event somewhere in the brain, they cannot be observed directly by crime investigators or triers of fact. Instead, the memory trace that resides within the human brain is manifested for investigators and triers of fact through verbal testimony. It is probably safe to conclude that courts of law could not function without relying on human memory. Even physical evidence, such as a bloody glove, requires someone to take the witness stand and recall where it was found, by whom, at what time, in what condition, and so on.

The scientific study of human memory was initiated over 100 years ago by Hermann Ebbinghouse (1885/1913), and the scientific study of human memory today remains almost exclusively the province of psychology and related cognitive and neurological sciences. The scientific study of memory is so fundamental to psychology that no general textbook in psychology could fail to devote a chapter or its equivalent to memory. Over the last 20 years or so, psychologists have developed a specific research literature on witness testimony. This research has been directed primarily at eyewitnesses, such as victims or bystanders to a criminal event. This issue of Psychology, Public Policy, and Law is devoted to the potential contributions of the scientific study of witness testimony to public policy and legal issues.

Making policy or procedure recommendations to the criminal justice system on eyewitness reliability issues is not new for psychologists. Nearly 90 years ago, Hugo Munsterberg (1908) argued that "Nearly every chapter and sub-chapter of sense psychology may help to clear up the chaos and confusion which prevail in the observation of witnesses" (p. 33), and he bemoaned the fact that juries and judges are not obliged to know and understand these things. Following a long period of near dormancy on the issue, research programs in psychology arose again in the mid-1970s, and there has been a renewal of the argument that scientific psychology has something important to offer the legal system. Unlike Munsterberg, who tried to rely almost exclusively on basic findings and theories of sensation and perception, modern researchers on eyewitness issues have made heavy use of complex stimulus...
events, such as filmed or live staged crimes, in order to approximate more closely the experiences of actual witnesses. In most of these studies, the event was created by the experimenters themselves, which allows for determinations of the amount, type, and conditions of error in people’s reports of what they have seen or heard. Thus, it is not surprising that since the mid-1970s, experimental research on eyewitness testimony has appeared in a variety of psychology journals and spawned numerous doctoral dissertations and scholarly books (e.g., Clifford & Bull, 1978; Lloyd-Bostock & Clifford, 1983; Loftus, 1979; Ross, Read, & Toglia, 1994; Wells & Loftus, 1984; Yarmey, 1979).

Although the theme for this special issue is witness memory and law, it should be noted that the psychological and legal issues addressed are broader than might be implied by a narrow interpretation of the construct of memory. The issues are broader in the sense that the psychological phenomena that underlie witness testimony are governed by more than just memory processes. Research and theory on lineups, memory interview techniques, and eyewitness confidence, for example, make use of cognitive processes other than memory, such as social influence, reasoning, and human decision making. In addition, memory testimony and memory are not identical terms. Memory testimony is the witness’s statement of what he or she recalls of a prior event. These statements can be influenced by more than just memory processes. Note, for instance, that eyewitnesses’ compliance with demand characteristics of a situation, guessing behaviors, confusions of real with imagined memories, and related phenomena may have little to do with memory processes per se. Nevertheless, these processes affect the witnesses’ verbal testimony.

The articles in this issue of Psychology, Public Policy, and Law describe some of the most significant findings from this modern approach to the interface of memory testimony and law. One theme that the reader will not find in this issue is that witness memory is unreliable. The reliability of memory is a variable, not a constant, and the purpose of the work described in this issue is to describe the conditions under which memory reports are more or less accurate and complete. Because of the interest in exploring policy implications from this work, a premium is placed on identifying conditions that affect the accuracy of witness memory that are under the control (or can be brought under the control) of the legal system. Any variable that affects the accuracy of witness memory that the legal system itself can control (such as how to conduct a memory interview or how to structure a police lineup) could be used to suggest policy changes to bring the system’s usage of that variable in line with scientific evidence.

Police generally exercise great caution in their approach to physical evidence at a crime scene, being very careful not to touch or move objects for fear of contaminating physical trace evidence. Usually, a specially trained forensic team is called in to deal with physical trace evidence. These same police, however, do not seem to accept the premise that memory traces can also be contaminated. Police somehow feel perfectly free to fire poorly constructed questions at eyewitnesses on the spot, allow eyewitnesses to overhear other eyewitnesses, take spotty notes of eyewitnesses’ answers (and not record the actual question asked), and generally not use any theory of a proper memory interview. It seems strange to many psychologists that police

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1The memory capabilities and suggestibility of children are not a part of this issue of Psychology, Public Policy, and Law. Research on children’s suggestibility was covered in the second issue of this journal.
investigators are not specifically trained in techniques for interviewing eyewitnesses. In his article, R. P. Fisher (1995, this issue) reviews research and theory directed at how to conduct episodic memory interviews, contrasts current police practices with the lessons of the scientific literature, and makes recommendations for how to improve the effectiveness of memory interviews of crime witnesses by police. Fisher argues that the methods used by police are a product of their training for interviewing criminal suspects, which works poorly with eyewitnesses. The value of controlled experiments is readily apparent, because they allow direct comparisons of common police interview techniques with other techniques, such as the cognitive interview.

Eyewitness identification from lineups or photospreads can be a powerful form of evidence against the accused in a criminal trial. In cases where an eyewitness selects someone from a lineup and then testifies that this is the person who committed the offense in question, belief of the eyewitness is tantamount to believing that the defendant is guilty. Hence, the validity of eyewitness identification evidence is critical in cases for which it is offered as evidence. Studies of proven cases of wrongful conviction indicate that about 3% are attributable to “frame ups,” 8% to coerced confessions, and 52% to false identifications (Rattner, 1988). In my article with E. Seelau (1995, this issue), we describe research showing that the methods used to secure identifications from lineups and photospreads have a strong impact on the likelihood of securing false identifications. We argue that the courts should impose four simple rules for conducting lineups and photospreads that could effectively minimize the role that the lineup and photospread methods used by police play in contributing to false identifications. We review the U.S. Supreme Court’s ruling on lineups and photospreads and describe how those rulings have not addressed the critical issues in an effective way.

Although most work on witness memory has focused on eyewitnesses, the legal system theoretically could rely on witness memory for any of the five human senses. One could imagine a victim witness testifying about recognizing the smell, taste, or feeling of a defendant’s skin, for example. At this point, I know of no tactile, olfactory, or gustatory lineups. Voice recognition lineups, on the other hand, are not uncommon. A. D. Yarmey (1995, this issue) reviews what we know about voice recognition, especially the recognition of a voice heard only once before. The issues, findings, and recommendations are highly similar to those in the area of visual lineups; for example, Yarmey argues that the witness should be warned that the actual culprit’s voice might not be among the alternatives in the voice lineup and that the person administering the voice lineup should not be aware of which voice is that of the suspect.

Mistakes by eyewitnesses and earwitnesses would not be particularly problematic if there were “markers” of memory error. Imagine, for instance, that whenever an eyewitness’s testimony included a memory error (e.g., saying that a culprit had a mustache when in fact the culprit was clean shaven), a red flag emerged from the eyewitness’s head and everyone would know to not trust the statement. In the absence of red flags, eyewitness researchers have tested the reasonable assumption that the confidence that an eyewitness expresses in his or her statements is a cue to the accuracy of that statement. A great deal of eyewitness research has been directed at the confidence–accuracy issue in the context of eyewitnessing, and this work is reviewed in the article by S. Penrod and B. Cutler (1995, this issue). The issue is an
important one because people (including jurors) assume that eyewitness confidence is a reliable indicator of the accuracy of an eyewitness, and courts have also endorsed this assumption. As Penrod and Cutler note, there is some diagnostic value to eyewitness confidence under some conditions, but the magnitude of the confidence-accuracy relation is perhaps smaller than people believe. Furthermore, there are events that can destroy the diagnostic value of eyewitness confidence, and the justice system has some control over these events.

It is not only police and courts that have been making decisions on the basis of assumptions about human memory. Legislators in many states have changed their statute of limitations for launching legal proceedings against alleged child abusers to accommodate cases in which the memory was repressed and recovered after such a long period of time that it would be outside the normal statute of limitations (Ernsdorff & Loftus, 1993). Changes of this type rest on assumptions about the validity of repressed memories that are controversial in the scientific community. The article by D. S. Lindsay and J. D. Read (1995, this issue) addresses what we know at this point about recovered memories of childhood sexual abuse. Their concern is not with cases of sexual abuse in which the victim has always remembered the events but not disclosed them out of fear or shame, but instead with cases in which the person allegedly repressed the abuse for years or decades and then, with the aid of certain therapeutic techniques, recovers memories for the abuse. This phenomenon of repression and recovery of significant event memories is difficult to reconcile with scientific theories of how memory works, and many respected psychological scientists believe that these are false memories. Lindsay and Read provide a broad treatment of the issue, including a review of work on the creation of false memories. Research and theory on the confusion between real memories and imagined or suggested events are in many ways still at an early stage of development. The relevance of this work to legal and public policy, however, is indisputable.

Many experts have given expert opinion testimony on eyewitness issues in recent years. Commonly, however, courts have excluded the use of experts on eyewitness issues on one or more grounds. The decision to allow or disallow expert testimony on eyewitness issues is left to the discretion of the trial judge, the criteria vary across jurisdictions, and even judges within the same jurisdiction can make different determinations on the admissibility of expert testimony on eyewitness issues. Commonly, trial judges' decisions on the admissibility of expert testimony on eyewitness issues tend to revolve around four factors: (a) the scientific nature of the work, (b) the relevance of the work, (c) general agreement among experts in the area, and (d) the extent to which the expert might unduly influence the jury. Hence, negative decisions on the admission of an eyewitness expert tend to cite the idea that the knowledge is not scientific, not relevant to the case in question, not generally accepted in the discipline, would unduly influence the jury, or any combination of these. Ultimately, the question is (and should be) whether an expert could assist the judge or jury in making determinations of fact. On this question, reasonable people can disagree, and the answer could be yes in some cases and no in other cases, depending on case-specific characteristics. From a legal and public policy perspective, however, there is a problem to the extent the variation in admissibility decisions is attributable more to ambiguity in the criteria for admissibility, the idiosyncratic views of the trial judge, or the characteristics of the jurisdiction than it is to the specific characteristics or needs of the case.
M. Leippe’s article (1995, this issue) addresses the expert testimony issue from the perspective of a scientific eyewitness expert. Leippe reviews what is known from psychological studies about the ability of jurors to deal with eyewitness issues on their own, for instance, and draws the conclusion that they need help in many cases. He also reviews issues about general agreement among experts, the scientific status of the research, the relevance of the experimental work to actual eyewitness situations, and the question of whether an expert would have a prejudicial impact on the jury.

D. Faigman, a legal scholar, rounds out the articles in this special issue on memory and law by discussing (1995, this issue) the question of expert testimony in the context of the recent U. S. Supreme Court ruling in Daubert et al. vs. Merrell Dow Pharmaceuticals (1993). Although state courts are not obliged to use the Daubert criteria for deciding the admissibility of expert testimony, the reasoning in Daubert is likely to affect how courts decide such issues in the future. Faigman considers how Daubert might affect the admissibility of memory experts in recovered memory cases versus more traditional eyewitness cases. He argues that the Daubert ruling beseeches scientists to be good scientists and expects judges and lawyers to become sophisticated consumers of science. “This does not mean that judges should be able to conduct experiments or write scientific papers. It means that judges should be able to read scientific papers reporting experiments” (p. 976).

Only time will tell if Daubert increases the sophistication of members of the judiciary as consumers of science. To date, the scientific literature on witness memory has not been a driving force behind the legal system’s assumptions, procedures, and decisions regarding witness testimony. In part, this is probably because scientific research on witness testimony is relatively recent when compared to how long the legal system has relied on memory testimony from witnesses. Hence, the judiciary has had relatively little time to absorb this literature and its implications. In addition, most of the previous scientific writings on witness memory have tended to restrict their focus primarily to the empirical status of the hypotheses being tested rather than the potential policy implications of the findings. This issue of Psychology, Public Policy, and Law, on the other hand, places an emphasis on policy implications of scientific memory work in a way that might speed up the absorption of this work into the assumptions, procedures, and decisions of the legal system.

References
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