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Applying Eyewitness Identification Research to the Legal System: A Glance at Where We Have Been and Where We Could Go☆

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Psychologists have made attempts to apply psychological knowledge on eyewitness issues to the legal system for over a century. But it was not until the 1990s that an organization of psychological researchers (the American Psychology-Law Society) made concrete recommendations in a white paper concerning eyewitness identification. These recommendations, along with the discovery of wrongful convictions from mistaken identification, have shaped policies and practices in many jurisdictions across the U.S. We discuss the white paper recommendations and how those recommendations have held up over time. Then, we discuss a more recent idea concerning the need for a reasonable-suspicion requirement before subjecting an individual to the inherent risk of an identification procedure.

Keywords: Eyewitness identification, Legal application, Lineup procedures

Perception, memory, and decision-making are imperfect and psychologists have been applying this knowledge to the legal system for over 100 years. One of the most productive aspects of this application has come from programmatic experimental research on eyewitness identification and reliability, which began in earnest in the mid to late 1970s. But the legal system in the United States did not take seriously the problem of mistaken eyewitness identification until the mid-1990s when forensic DNA testing began uncovering cases of innocent people who were mistakenly identified by eyewitnesses and convicted by juries. Today, scientific psychology has a voice in the legal system on eyewitness issues, and this voice is heard by courts, police, and policy makers.

Psychology has played a major role over the last two decades in effecting change in the U.S. legal system regarding eyewitness identification evidence. In 1999, for example, the first U.S. national guidelines for law enforcement on the collection and preservation of eyewitness evidence were developed by the National Institute of Justice, commissioned by the U.S. Department of Justice (National Institute of Justice, 1999). These guidelines relied heavily on input from psychological researchers and the psychological literature on eyewitness identification (see Wells et al., 2000). Also, significant state Supreme Court cases in New Jersey (*State v. Henderson*, 2011), Oregon (*State v. Lawson*, 2012), and other states have looked to eyewitness identification research to help fashion new rules governing the admissibility of eyewitness identification evidence in court. Likewise, the recommended policies for lineups that were put forth by the International Association of Chiefs of Police (2013) relied heavily in psychological research. A growing number of states (e.g., North Carolina, Ohio, Connecticut, Kansas, Illinois, New Jersey, Maryland, and Vermont), now have laws requiring double-blind lineup administration, a procedural recommendation that came from eyewitness researchers. Furthermore, all except two U.S. states now permit expert testimony in court on eyewitness identification issues. These are examples of huge changes in how the legal system collects and interprets eyewitness identification evidence in the U.S., largely spurred and informed by psychological research.

A prominent event that helped shape these changes in how the legal system handles eyewitness identification evidence was the publication of the white paper on lineups, commissioned by

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the American Psychology-Law Society (Wells et al., 1998). In the current article we describe the five recommendations that were contained in the white paper, the foundation for those recommendations, the impact of those recommendations, and how those recommendations have held up to the test of time.

The American Psychology-Law Society Recommendations on Lineups

The APLS white paper outlined five recommendations for the collection and preservation of eyewitness identification evidence (Wells et al., 1998). Specifically, the recommendations were that:

1. A lineup should contain only one person who is a possible suspect with the remaining members being known-innocent fillers.
2. Lineup fillers need to be chosen carefully so that the suspect does not stand out based on how the witness described the culprit (or for other reasons).
3. The person conducting the lineup should not know which person is the suspect and which are merely fillers (the double-blind lineup).
4. Pre-lineup instructions should warn the witness that the culprit might not be in the lineup.
5. Witnesses should be asked to indicate how certain they are in any identification that is made.

Ironically, some eyewitness researchers seem to have a false memory that the AP-LS white paper also made other recommendations known to improve lineup fairness, such as sequential lineups. But, it did not. Instead, the white paper was a relatively conservative proposition containing only these five recommendations. The white paper was a 20-month project involving public postings of drafts, wide distribution, public meetings at conferences, and extensive peer review. The white paper was also the first peer-reviewed publication to document DNA exonerations—the characteristics of the first 40 DNA exoneration cases were discussed as well as the dominant role that mistaken eyewitness identification played in those wrongful convictions.

Why These Five Recommendations and How Have They Held Up?

The idea of the AP-LS white paper on lineups was to formulate a small number of widely supported conclusions based on the eyewitness identification literature, grounded in science. Grounding in science does not necessarily mean that a recommendation rests directly on lab data from eyewitness identification experiments. For example, there was little data at the time comparing double-blind versus non-blind lineup administration. But, there is a strong analogy between police conducting a lineup and researchers conducting an experiment (Wells & Luus, 1990). After all, police have a hypothesis (that their suspect is the perpetrator), create a design (embed the suspect among fillers), execute a procedure (instruct witnesses before viewing), gather the data (record any identifications and collect confidence statements), and interpret the results (increase or decrease their belief that the suspect is the culprit based on the lineup results). But experiments are consistently shown to be susceptible to experimenter effects (e.g., Rosenthal & Rubin, 1978), and the idea of conducting a lineup using a double-blind procedure is an obvious way to export this knowledge to improve the police practice of conducting lineups. Until psychology advocated the double-blind lineup, the legal system had never considered such an idea.

Whereas the double-blind lineup recommendation stemmed from the lineups-as-experiments analogy and our knowledge of how to prevent external influence from testers by using double-blind testing methods, the other four recommendations were grounded in empirical lab data. The eyewitness identification literature had good evidence at that time that poor lineup fillers increase the risk of mistaken identifications (e.g., Wells, Rydell, & Seelau, 1993) and that failure to warn witnesses that the culprit might not be in the lineup increases the risk of mistaken identifications (e.g., Malpass & Devine, 1981). Furthermore, empirical data showed that the certainty of the witness was diagnostic of the accuracy of the witness (e.g., Sporer, Penrod, Read, & Cutler, 1995), but only if a certainty statement is taken at the time of the identification while it was still uncontaminated by confirming feedback (Wells & Bradfield, 1998).

How has the white paper been received by the justice system? All the evidence indicates that it has been received quite well. The five recommendations in the white paper formed the model on which the NIJ guidelines on eyewitness identification were built (National Institute of Justice, 1999) and these guidelines were distributed to the more than 16,000 law enforcement agencies across the U.S. These same five recommendations remain at the core of specific reforms put forth by the Innocence Project, the International Association of Chiefs of Police, and many other legal bodies. And, the five recommendations in the white paper underpin the numerous state and local-level reforms to eyewitness identification procedures that continue to unfold across U.S. jurisdictions.

Overall, it appears to us that the AP-LS recommendations have held up well to the test of time. In 2014, a review of the eyewitness identification literature was conducted by a committee of the National Research Council (2014). The NRC report supports all five of the AP-LS white paper recommendations and goes even further to make additional recommendations (e.g., videotaping all identification procedures, police training).

At the same time, it is not surprising that now, nearly two decades later, there are a few researchers who have questioned some aspects of these recommendations. For example, one researcher has questioned the use of double-blind procedures when conducting lineups (Clark, 2012). Clark does not disagree that lineup administrators can influence witness choices, but Clark argues that nudges from a lineup administrator tend to more readily shift a witness from an incorrect identification to a correct identification of the culprit, rather than shifting the witness to an identification of an innocent suspect. And, if the lineup administrator is usually correct (i.e., the suspect in the lineup is the actual culprit), then single-blind administration might produce better results than double-blind.

Maybe this is true, at least under some conditions. But the justice system clearly requires that eyewitness identification

evidence needs to be based on the eyewitness's *independent recollection*, not the result of external influences by state actors (Wells, Steblay, & Dysart, 2012). Hence, the question is not purely one of accuracy; it is also one of making sure that the evidence is the result of the witness's independent recollection rather than the result of the behaviors of the lineup administrator or other external influences. Moreover, there was good evidence at the time of the white paper (Wells & Bradfield, 1998), and even stronger evidence now (Steblay, Wells, & Douglass, 2014), that non-blind lineup administrators can dramatically inflate the confidence that witnesses express in their mistaken identifications. This is problematic because the eyewitness is incorrect, but more certain they picked the culprit.

Of course, the white paper was not perfect and is far from complete. For example, there are details that researchers remain uncertain about, such as precisely how to best select lineup fillers. Nevertheless, the basic recommendations have not changed and there is no definitive research at this point that would change the fundamental aspects of those five recommendations.

Another point about the white paper is that it laid the structural foundation for more recent recommendations that depend on the white paper recommendations already being in place. For example, Wixted and his colleagues have recently argued that juries should be instructed to use eyewitness confidence to make determinations about the likely accuracy of the witness's identification (Wixted, Mickes, Dunn, Clark, & Wells, 2015). Indeed, under many conditions eyewitness confidence can be a strong predictor of eyewitness identification accuracy. But a reliable confidence-accuracy relation in actual cases requires that those jurisdictions are already successfully implementing the reforms that were recommended in the white paper. For example, one should rely on the confidence of the witness only if the confidence statement was taken at the time of the identification, only if the lineup was administered using a double-blind procedure, and only if the lineup fillers were properly selected. As a result, the white paper has proven to be critical for creating a foundation on which later recommendations (such as relying on confidence) could be proposed and built.

Finally, another lesson that might be extracted from the white paper history is that the *general* idea behind a recommendation is likely to be more important and enduring than are the *specific* details of how that idea is operationalized. Consider, for example, the white paper's recommendation about how to select fillers. The general idea was to make the lineup fair to the suspect by ensuring the suspect does not stand out. But the specific recommendation (use the verbal description that the witness had given for selecting fillers) is not the only method for achieving this, and maybe not even the best. Another example is the double-blind lineup procedure. The general idea is to prevent the lineup administrator's knowledge of which lineup member is the suspect from influencing the identification decision and confidence of the eyewitness. But using a double-blind administrator is not the only way to achieve that goal.

Ultimately, the conceptual underpinnings of the ideas that psychology applies to the justice system might be more useful and enduring than the specific operationalizations (the "how to") that we specify. Hence, an argument can be made for recommendations that are at a broader level of general principles (e.g., suspect should not stand out in the lineup) rather than detailed implementation (e.g., make all lineup members resemble the appearance of the suspect). The general principle is likely to be more valid and enduring than any specific detail of implementation. But, psychological scientists should remain engaged with police and policy makers so as to avoid invalid or poorly executed implementations from the general principle.

A New Challenge: Applying Our Knowledge of Base Rates

The reforms to eyewitness identification procedures will continue to be refined as new research continues to hone filler selection strategies, pre-lineup instructions, and so on. But these reforms have been focused exclusively on the procedure itself. We argue that there is a role to be played by psychological scientists in helping the legal system understand the critical role played by base rates. The proportion of identification procedures in which the culprit is present versus absent is called the *base rate* and eyewitness researchers have been noting the large impact of that base rate on the chances of accurate and mistaken identifications for over 35 years (Wells & Lindsay, 1980).

Clearly, the dangers of mistaken identification increase dramatically when the actual culprit is not included identification procedure (whether a lineup or a showup; Wells, 1993). Indeed, in every DNA exoneration case involving mistaken identification the culprit was not in the lineup (or showup).

An extensive treatment of the base-rate problem in eyewitness identification was published recently (Wells, Yang, & Smalarz, 2015). Using data from 94 eyewitness identification studies, Wells and colleagues used Bayesian statistics to estimate the probability that an identification of the suspect was accurate versus mistaken under all possible base rates from zero to 100%. The results showed that if the culprit-present base rate was 75%, then the chance that an identified suspect was innocent was 9%. However, if the culprit-present base rate was only 25%, then the chance that an identified suspect was innocent ballooned to a whopping 53%. In other words, the chance that an identified suspect is actually innocent rises from a 9% chance to a 53% chance when the proportion of identification procedures in which a culprit is actually present drops from 75% to 25%. Keep in mind that these are the same eyewitnesses and the same lineups being compared here—the only thing that changes is the proportion of lineups in which the culprit is present.

In most research articles mentioning culprit-present/absent base rates, the authors often lament that we do not know what the base rate is in the real world, suggesting that the base rate is simply another estimator variable. But the base rate in eyewitness identification is a system variable in the sense that policies and practices of actors in the legal system influence the base rate (Wells, 1993; Wells et al., 2015). For example, one police department might not conduct a lineup until there is fairly good evidence indicating that the suspected person is the culprit. Another police department might run a lineup based

on a mere hunch. The latter department is likely to run a much higher target-absent base rate than the former department and will run a higher rate of mistaken identifications of innocent people.

What determines the base rate in actual cases? Currently, there is no legal standard or policy at all for when police can make an individual the subject of an identification procedure. In a national survey of law enforcement agencies, more than one-third indicated that their officers need no evidence at all to place someone in a lineup (Wise, Safer, & Maro, 2011). Field studies of lineups conducted by police reveal that 30% were conducted under conditions in which the evidence against the individual was "minimal". Even more shocking is that an additional 40% of the lineups were conducted under conditions in which there was no extrinsic evidence at all against the individual (e.g., Behrman & Richards, 2005). In a recent study of 348 lineups conducted by the Houston Police Department, post hoc estimations indicate that the base-rate proportion of lineups in which the suspect was guilty was about 35% (Wixted et al., 2015). In other words, if the Wixted and colleagues estimate is correct, 65% of these witnesses in actual cases were shown a culprit-absent lineup. Low suspect base rates are relevant to the earlier discussion of Clark's (2012) argument about double-blind lineups—if the police know who the suspect is, they may nudge the eyewitness toward selecting that person, but the suspect is not likely to be the culprit according to these base-rate estimates.

Both laboratory experiments and actual cases converge on the proposition that culprit-absent lineups create inherent jeopardy for innocent suspects. Accordingly, a strong argument can be made for policies that require reasonable suspicion (some tangible, documentable evidence beyond a mere hunch) before placing a possible suspect into the jeopardy of an eyewitness identification procedure (Wells et al., 2015). What level of evidence might be required before placing a possible suspect into the inherent jeopardy of an eyewitness identification procedure? Science cannot tell the justice system what base rate to set for eyewitness identification procedures. But, science can (and should) help the justice system understand the critical importance of base rates to the chances of mistaken identification and how the addition of a reasonable-suspicion requirement can help protect against mistaken identifications.

Despite the huge impact of the culprit-present base rate on the chances of mistaken identification found in psychological research, the legal system has never recognized the base-rate problem with lineups. This is not surprising—judgment and decision-making researchers have long noted that the relevance and impact of base rates on posterior probabilities is counterintuitive to people (e.g., Kahneman & Tversky, 1973). Because of its counterintuitive characteristics, the base-rate problem in eyewitness identification is vastly more difficult to effectively communicate to the justice system than are some of the other recommendations that we have made in the past. The new goal for eyewitness researchers is to figure out how to educate the justice system on this base-rate problem so as to help the justice system avoid low base rates in eyewitness identification procedures.

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