Confidence and Accuracy

Few questions matter more at trial than whether a confident eyewitness is an accurate one. Jurors rely heavily on a witness's certainty, and the law has long invited them to. This paper traces what the science actually shows about the relationship between an eyewitness's confidence and the accuracy of the identification — a relationship more nuanced than either the commonsense faith in confidence or the older scientific skepticism would suggest. The story has three parts: the intuitive assumption that confidence signals accuracy; decades of research finding the confidence–accuracy correlation to be, on average, only modest; and a modern synthesis showing that confidence is in fact strongly informative — but only when it is measured at the moment of an initial identification, under proper conditions, before anything has had a chance to inflate it. The purpose here is to define the terms a court will encounter and summarize this evidence in plain language, without favoring any party.

The Commonsense Assumption

It seems obvious that a confident witness should be an accurate one — that people are good judges of what they do and do not know. Surveys confirm that this is the common belief (Wells & Murray, 1984; Yarmey & Jones, 1983), and jurors act on it. When mock jurors evaluate eyewitnesses, their judgments of a witness's accuracy track the witness's expressed confidence closely, for both identifications and recall (Leippe, Manion, & Romanczyk, 1992; Wells & Murray, 1984), and jurors more readily believe a confident witness than a hesitant one (Whitley & Greenberg, 1986). A recent meta-analysis confirms that a witness's confidence is among the strongest influences on whether jurors believe an identification and vote to convict (Slane & Dodson, 2022).

The law has encouraged this reliance. In setting out the factors for judging whether an identification is reliable, the United States Supreme Court listed the witness's level of certainty among them (Neil v. Biggers, 1972; Manson v. Brathwaite, 1977), and jurors are routinely told they may consider a witness's confidence. Police investigators make the same assumption, asking the confidence question both to gauge whether they have the right person and because they know that confident witnesses are the most persuasive to prosecutors, judges, and juries. All of this rests on two premises: that expressed confidence indicates the likely accuracy of a memory, and that confidence is itself primarily driven by the strength of that memory. The scientific question is whether those premises hold — and the answer has changed in important ways over time.

Measuring the Confidence–Accuracy Correlation

Between 1980 and 1995 the relationship was reviewed at least five times, with a remarkably consistent result: eyewitness confidence was, at best, only modestly predictive of identification accuracy. Deffenbacher's (1980) review sounded the first note of caution, finding that only about half of the reported confidence–accuracy correlations were statistically significant and concluding that confidence was not reliably related to accuracy. Wells and Murray (1984) reached the same conclusion, reporting an average correlation of about .08 across thirty-one studies, with even the reliable relationships averaging only about .31. The first formal meta-analysis, by Bothwell, Deffenbacher, and Brigham (1987), restricted itself to studies of recognition memory for unfamiliar faces and found a weighted average correlation of about .25 — significant, but weak — and showed that it was stronger when witnesses had viewed the target for longer, an early sign that conditions matter.

A second meta-analysis sharpened the picture in a way that anticipates the modern synthesis. Sporer, Penrod, Read, and Cutler (1995) found an overall correlation of about .27, but when they analyzed only "choosers" — witnesses who actually made a positive identification rather than rejecting the lineup — the correlation rose to about .41, the highest aggregate estimate to that

point. They argued that confidence is a valid if "far from perfect" indicator of accuracy, at least when it is measured before a witness is exposed to outside influences such as feedback about other witnesses. A narrative review by Penrod and Cutler (1995) was more pessimistic, contending that even a best-case correlation around .41 is too loose for forensic reliance, especially because real cases introduce the very influences that erode the relationship.

Individual studies since these reviews have reported confidence–accuracy correlations ranging widely — from roughly .16 to .68 — depending on the witnessing and testing conditions. A key methodological lesson emerged from this work: when studies combine witnesses across widely varying conditions, so that accuracy and confidence both rise and fall together, the correlation appears much larger than it does within any single condition (Lindsay, Read, & Sharma, 1998). Synthesizing this body of work, the consensus "bottom line" was that the correlation may be as high as about .40 when the analysis is restricted to witnesses who make an identification and confidence is measured before non-memorial influences intrude (Wells, Olson, & Charman, 2002). To make that figure concrete, if eyewitnesses are accurate about half the time, then roughly 70% of those with above-average confidence will be correct, compared with only about 30% of those with below-average confidence — a useful but far from decisive signal (Penrod & Cutler, 1995; Wells et al., 2002). A correlation of .40 is about the same as the correlation between height and sex in adults: knowing a witness is highly confident raises the odds of accuracy about as much as knowing an unseen person is very tall raises the odds that the person is male (Wells et al., 2002).

The Traditional View: Confidence Is Malleable

For roughly twenty-five years the dominant conclusion drawn from this literature was cautionary: the confidence–accuracy correlation was weak on average, witnesses were frequently overconfident, and many influences could raise confidence without raising accuracy (Leippe, 1980; Sporer et al., 1995). This view drew powerful support from the DNA-exoneration cases, in which witnesses who had confidently identified the wrong person at trial were later proven mistaken. The lesson taken from this body of work — and it remains valid — is that a witness's certainty at trial is not, by itself, a dependable measure of whether the identification is correct.

The Modern Synthesis: When Confidence Is Informative

More recent research has refined that conclusion rather than overturning it, and the refinement is critical. The key insight is that the timing and conditions of the confidence statement determine whether it is meaningful. When confidence is recorded at the moment of an initial identification, made under proper ("pristine") testing conditions and before any outside influence, it is in fact a strong indicator of accuracy: a high-confidence initial identification is, on average, considerably more likely to be correct than a low-confidence one (Wixted & Wells, 2017). This pattern has been confirmed not only in the laboratory but in field studies of actual police identifications, where initial confidence reliably predicted accuracy (Wixted, Mickes, Dunn, Clark, & Wells, 2016; Quigley-McBride & Wells, 2023). The older finding of a weak relationship, it now appears, largely reflected studies that measured confidence after it had been contaminated, or at trial — long after the initial identification — and that combined witnesses across conditions in ways that obscured the within-condition signal.

The conditions that make an initial confidence statement trustworthy are demanding. A proper identification procedure uses a lineup containing only one suspect among known-innocent fillers who fit the witness's description; gives the witness an unbiased instruction that the culprit may or may not be present; is administered by someone who does not know which member is the suspect (double-blind); and records the witness's confidence in the witness's own words immediately, before any feedback. When these safeguards are absent, the predictive value of confidence is

compromised. The modern synthesis therefore cuts in two directions at once: it rehabilitates confidence as evidence, but only the confidence expressed at a clean, initial identification — and it underscores how little weight should attach to confidence that has been shaped by subsequent events. High confidence under proper conditions strongly favors accuracy; it does not guarantee it, and confident errors still occur.

Why Confidence Inflates After the Identification

Between the first identification and the trial there are many opportunities for a witness's confidence to grow without any corresponding gain in accuracy. The most studied is post-identification feedback. Simply telling a witness "Good, you identified the suspect" inflates the witness's later report not only of certainty but of how good a view they had, how much attention they paid, and how clear their memory was — and the effect is largest, and most troubling, for witnesses who were in fact wrong (Wells & Bradfield, 1998; Bradfield, Wells, & Olson, 2002; Steblay, Wells, & Douglass, 2014). Feedback need not be immediate; even confirming information delivered after a delay can distort a witness's confidence (Greenspan & Loftus, 2020). Confidence is similarly inflated by repeated questioning, by learning that a co-witness identified the same person, and by hypnosis. Because these influences accumulate as a case moves toward trial, the confidence a witness expresses on the stand is often substantially a product of what happened after the identification, not a window into the strength of the original memory.

Confidence in the Courtroom

By the time a witness testifies, then, confidence has usually been exposed to the very influences that detach it from accuracy, which is why trial confidence is a poor guide and why the contemporaneous record of the first identification matters so much. Research also bears on how confidence is best captured: collecting an eyewitness's confidence in the witness's own words at the time of identification can be as diagnostic of accuracy as a numerical rating, and sometimes more informative, provided it is obtained before contamination (Smalarz, Yang, & Wells, 2021). The social pressures of testifying add further, complex effects that are not yet well understood. The practical consequence is that a jury watching a confident witness on the stand is seeing confidence at its least informative point.

Recommendations

The research supports a small set of widely endorsed practices, reflected in the National Research Council's review of the field (National Research Council, 2014). Confidence should be assessed and recorded — verbatim, in the witness's own words — at the time of the initial identification, before any feedback, and the identification itself should be conducted under the pristine conditions described above. Everyone in the legal process, especially investigators and attorneys, should understand that confidence expressed later in the process is a weak indicator of accuracy and that many factors can inflate it. And where eyewitness identification is contested, jurors can be instructed about the factors that affect the relationship between confidence and accuracy, particularly those present in the case being tried.

Confidence, Accuracy, and the Law

The law's treatment of confidence has been in transition. The reliability factors of Neil v. Biggers (1972) and Manson v. Brathwaite (1977) include the witness's certainty, but courts and commentators have criticized that approach for inviting reliance on courtroom confidence — precisely the confidence the science shows to be least reliable — and for using a witness's own (inflatable) certainty to help validate a suggestive procedure. Several courts, drawing directly on the research, have revised how they handle identification evidence and confidence (State v. Henderson, 2011; State v. Lawson, 2012). Where an identification was not produced by

unnecessarily suggestive police procedures, its reliability — including the meaning of the witness's confidence — is for the jury to weigh (Perry v. New Hampshire, 2012).

Whether an expert may explain this research to the jury is governed by the rules on scientific and expert evidence: Daubert v. Merrell Dow Pharmaceuticals (1993), Kumho Tire Co. v. Carmichael (1999), and Federal Rule of Evidence 702 in federal court and the states that follow them, and the general-acceptance test of Frye v. United States (1923) elsewhere. Under any standard, such testimony is offered to inform the trier of fact about when confidence does and does not indicate accuracy — including the central importance of an early, uncontaminated confidence statement — not to opine on whether a particular witness is correct, a judgment the law reserves to the fact-finder.

Special Issues in Legal Practice

The principles described above apply with equal force to every party in a legal proceeding. Memory operates the same way regardless of who is asking the questions, and the science summarized here favors no side. What differs between the parties is not the science but the vantage point — the particular places where memory issues tend to surface, and the particular errors each party is best positioned to guard against. The two summaries below identify those recurring issues. They are offered for orientation, not as litigation strategy; in every case the controlling question is what the evidence in that case will, and will not, support, and the expert's role is to inform the trier of fact rather than to advocate for either side.

Special Issues for Prosecutors

For the State, the modern research can strengthen a sound identification while warning against reliance on the wrong kind of confidence. Where a witness expressed high confidence at an initial identification conducted under pristine conditions — a single suspect among fair fillers, an unbiased instruction, a double-blind administrator, and a confidence statement recorded verbatim before any feedback — that early confidence is an affirmative indicator of accuracy the State is well positioned to establish and document. The errors the prosecution is best positioned to guard against are those that inflate confidence without improving accuracy and thereby undermine the evidence: confirming feedback to the witness, repeated or suggestive questioning, exposure to co-witnesses, and the absence of a contemporaneous confidence record. Building the case on the documented first identification, rather than on the witness's certainty at trial, both reflects the science and produces the more defensible record.

Special Issues for Defense

For the defense, the recurring task is to separate genuine, early confidence from confidence that has been inflated after the fact — recognizing that a sincerely certain witness can be wrong. The research shows that confidence expressed at trial is a weak guide to accuracy, and that feedback, repeated questioning, co-witness contact, and suggestive procedures can raise a witness's certainty — most sharply when the witness is mistaken — while leaving accuracy untouched. The key questions are therefore whether a confidence statement was recorded at the initial identification, under what conditions the identification was made, and what the witness was told afterward; a confident in-court identification unaccompanied by a clean, contemporaneous record warrants particular scrutiny. The law contemplates that these matters be placed before the trier of fact through cross-examination, through challenge to the identification procedure, through requests for appropriate jury instructions, and, where the governing standard is met, through expert testimony (Daubert v. Merrell Dow Pharmaceuticals, 1993; Frye v. United States, 1923). The aim is not to claim that confidence is always meaningless — early, uncontaminated confidence can be informative — but to ensure that the confidence the jury hears is understood for what it is.

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