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Authors

Berkowitz, Shari R
Garrett, Brandon L
Fenn, Kimberly M
[et al.](#)

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Convicting with confidence? Why we should not over-rely on eyewitness confidence

Shari R. Berkowitz^a, Brandon L. Garrett^b, Kimberly M. Fenn^c and Elizabeth F. Loftus ^d

^aDepartment of Public Administration, California State University, Dominguez Hills, Carson, USA; ^bSchool of Law, Duke University, Durham, USA; ^cDepartment of Psychology, Michigan State University, East Lansing, USA; ^dDepartment of Psychological Science, University of California, Irvine, USA

ABSTRACT

Eyewitness memory researchers have recently devoted considerable attention to eyewitness confidence. While there is strong consensus that courtroom confidence is problematic, we now recognise that an eyewitness's initial confidence in their first identification – in certain contexts – can be of value. A few psychological scientists, however, have confidently, but erroneously claimed that in real-world cases, eyewitness initial confidence is the most important indicator of eyewitness accuracy, trumping all other factors that might exist in a case. This claim accompanies an exaggeration of the role of eyewitnesses' "initial confidence" in the DNA exoneration cases. Still worse, overstated claims about the confidence-accuracy relationship, and eyewitness memory, have reached our top scientific journals, news articles, and criminal cases. To set the record straight, we review what we actually know and do not know about the "initial confidence" of eyewitnesses in the DNA exoneration cases. Further reasons for skepticism about the value of the confidence-accuracy relationship in real-world cases come from new analyses of a separate database, the National Registry of Exonerations. Finally, we review new research that reveals numerous conditions wherein eyewitnesses with high initial confidence end up being wrong.

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It has not been lost on memory researchers, or the courts,¹ that eyewitness misidentifications have played an outsized role in cases in which innocent people were convicted, and then later exonerated due to DNA tests conducted post-conviction (Garrett, 2011). As the National Academy of Sciences recognised, these cases have "dramatically highlighted the problems with eyewitness identifications" (National Research Council, 2014, p. 11). Moreover, in the criminal trials of those exonerees, virtually all of the eyewitnesses were highly confident when they made powerful, in-court identifications (Garrett, 2011). What we know, however, from some well-known exoneration cases (e.g., Ronald Cotton and Jennifer Thompson) is that eyewitness confidence increased over time. That is, eyewitnesses who had been unsure at the time of a police lineup became certain by the time of trial. This inflated confidence contributed to wrongful convictions.

But the lesson to take from such cases is not that eyewitness confidence is wholly unreliable. For years researchers have examined the conditions in which an eyewitness's initial confidence may or may not denote accuracy (see Brewer & Wells, 2006; Juslin et al., 1996; Palmer et al., 2013; Sauer et al., 2010; Sauerland & Sporer, 2009). In

fact, a new wave of research has found that an eyewitness's initial confidence in their first identification is more valuable than once thought, at least in some contexts (Wixted & Wells, 2017; Wixted et al., 2015). While some of these findings provide valuable new insights, others are accompanied by statements made with an undue degree of, well, confidence. The assumptions made concerning DNA exoneration cases have played a central role in these misplaced claims.

Such claims have sometimes been accompanied by aggressive statements, suggesting that if a witness is highly confident at the time of an initial police lineup, they are likely accurate. Recent claims include that eyewitness "confidence is undeniably diagnostic of accuracy," in both laboratory studies and real criminal cases (Brewin et al., 2020, p. 122), and that eyewitness confidence is more indicative of accuracy than all other factors in a case. For example, Dr. John Wixted testified before a jury in a 2019 criminal case that an eyewitness's confidence on the initial memory test is the most important factor "because that's the indicator of whether it's reliable or not" (*People of the State of New York v. Boone*, p. 398). Thus, perhaps most troubling, this imprecise and

unsupported “confidence trumps all” message has even been made in an actual case (for more on Mr. Boone’s case, see Southall, 2019).

While we are skeptical of the “confidence trumps all” message, there is important consensus on many of the most important issues in the eyewitness area (National Research Council, 2014) – including that courtroom confidence and courtroom identifications are fraught with problems. Nor do we disagree with Wixted and Wells (2017) that initial low confidence may be a real red flag (as is a non-identification, or identification of a filler, etc.). Instead, our aim is to demonstrate that initial high confidence, standing alone, is not as reliable as some have claimed, and there is more to learn about high confidence errors.

Initial confidence in DNA exonerations

Unfortunately, some psychological scientists have, at best, casually described what is known of eyewitnesses’ initial confidence in actual cases of DNA exoneration. For instance, they conclude that although DNA exonerations involved highly confident eyewitnesses at trial that these eyewitnesses were initially not confident in their identifications (Brewin et al., 2020; Wixted et al., 2018a, 2018b). This is an unsupported representation of the evidence gathered from those DNA exoneration cases. The second author has reviewed the first 250 DNA exonerations² that took place in the United States (Garrett, 2011). While many factors contributed to these wrongful convictions, mistaken eyewitness identifications occurred in the largest subset: 190 (76%) of these cases. This high percentage is in part because DNA testing is particularly useful in sexual assault cases involving strangers, and these cases often involved a victim who had made an eyewitness identification.

Of these 190 cases, trial records were obtained for 161 (85%). Issues with eyewitness reliability occurred frequently in the 161 trials, with some showing multiple reliability issues. In 64 (40%) of the cases, the eyewitnesses identified either a filler, another suspect, or no one at all from the identification procedure, and in another 15 (9%), the eyewitnesses’ claimed they never saw the perpetrator’s face. In 34 (21%), the eyewitnesses’ testified *at trial* that they were initially uncertain in their identification. To summarise, some trial records revealed testimony about earlier lack of confidence, some pointed to an earlier non-identification, some to a filler identification, and some testified that the perpetrator’s face was not seen and could not be identified. Taken together, 91 of these 161 cases (57%) involved one or more of these reliability-related issues.

Furthermore, we do not truly know how confident any of the eyewitnesses were in their initial identifications because: “We do not know what happened and what was said at these identifications, apart from what witnesses later recounted at the trial” (Garrett, 2011, p. 64).

If the data exist, they reflect *trial* testimony about eyewitnesses’ *retrospective* judgments of initial confidence. Such data were obtained from trial transcripts, not police reports. Even if police reports could be obtained from decades-old cases, it was not common practice to collect or record eyewitness confidence in the 1980s and 1990s. The entire identification procedure was recorded in only four of those 161 DNA exoneration cases. To this day, some agencies still do not record information about eyewitnesses’ initial confidence, and for those that do, concerns remain about collecting it consistently and recording a faithful record of it.

It is worth stressing an obvious point that may be missed: At the time of trial, eyewitnesses’ memories of their initial confidence may not be accurate. Furthermore, eyewitnesses were not always asked at trial how confident they had been at the time of an earlier lineup. It may be that eyewitnesses were far more uncertain at the time of the lineup, and their confidence was inflated through police suggestion, as occurred in the bulk of these cases (Garrett, 2011). Or, it may be that only the more glaring red flags, like identifying a filler, were brought out at trial because they had to be explained. The eyewitnesses were invariably asked to identify the defendant in the courtroom and indicate their courtroom confidence. Thus, more cases might have involved initial low confidence identifications that inflated into highly confident identifications at trial (Wells & Bradfield, 1998), or some cases might even involve initial high confidence identifications, but we simply do not have these data.

Misrepresentations of eyewitness confidence in the DNA exonerations

Nonetheless, consider the frequent erroneous claims in both criminal cases and the scientific literature about the initial confidence of eyewitnesses in the DNA exoneration cases. While 34 (21%) of these cases involved eyewitnesses who *reported at trial* that they initially lacked confidence in their identification, these trial data are incomplete, and we cannot say for sure what happened during the identification procedures. Yet researchers repeat, incorrectly, that that in all or most of these cases, eyewitness confidence was inflated.

- Dr. Wixted testified in a criminal trial that, “In 91 [of] those cases there was a record that existed about what the witness did on that first test. And in every single one of those cases the witness made it clear that they were not confident ...” (People of the State of New York v. Boone, 2019, p. 409).
- Brewin et al. (2020) explained that, “In a comparison of available records of the initial identification and the courtroom identification from cases in which the suspects were later exonerated, Garrett (2011) found that the initial identification was made with low confidence

or no identification, but the courtroom identification was made with high confidence” (p. 122).

- Wixted et al. (2018a) claimed: “Eyewitnesses typically provide *reliable* evidence on an initial, uncontaminated memory test, and this is true even for most of the wrongful convictions that were later reversed by DNA evidence” (p. 324).
- Wixted et al. (2018a) also claimed that none of the eyewitnesses in the 161 cases were initially highly confident and stated, “In fact, in no such case was a witness both mistaken and highly confident” (p. 333).

Taken together, these accounts would lead you to believe that eyewitnesses in actual cases of mistaken identification were always or nearly always initially uncertain in their identifications. Yet, Garrett (2011), which each cites, made clear that we do not have any idea how confident these eyewitnesses were in their initial identifications because there is no record. Thus, it seems that at least some researchers are willing to use the DNA exoneration cases to bolster their “confidence trumps all” message even if it means relying on data which they themselves view as less reliable: retrospective confidence judgments at trial.

Let us turn to another concern in real-world cases of eyewitness memory. How often are eyewitnesses who make an initial identification with high confidence incorrect? Wixted et al. (2018b) conceded that such identifications, “... would be an indictment on the reliability of eyewitness memory in the real world,” but explained that, “... so far, those errors appear to be *rare*” (p. 344). Yet we do not have data that bear directly to that question. There is no database that records how many arrests or trials in a given year rely on eyewitness testimony (nor how confident the eyewitness was in their identification), nor do we know how many of these cases resulted in trial or conviction, yet alone wrongful accusation or conviction.

What’s more, some researchers have called on us to rethink the scientific nature of human memory itself (Brewin et al., 2020). The National Research Council (2014) concluded after examining the science of eyewitness memory that,

Memory is often far from a faithful record of what was perceived through the sense of sight: its contents can be forgotten or contaminated at multiple stages, it can be biased by the very practices designed to elicit recall, and it is also heavily swayed by emotional states associated with witnessed events and their recall. (pp. 69–70)

That careful statement, emphasising that memory can be altered at many stages, is a far cry from the casual overstatements and misrepresentations of the memory science that we have discussed here. These “confidence trumps all” and “memory is reliable” messages cherry-pick and oversimplify the nature of the confidence-accuracy relationship and human memory.

Reasons to doubt the confidence-accuracy relationship in real-world cases

Another concern we have is that the “confidence trumps all” message may obscure our understanding of key issues to be examined in eyewitness memory. We and others have serious concerns about applying the confidence-accuracy relationship research to real-world cases (Berkowitz & Frenda, 2018; Sauer et al., 2019; Wade et al., 2018), primarily because initial confidence can be inflated when police use suggestive identification procedures (Wixted & Wells, 2017). Furthermore, Wixted and Wells (2017) emphasised that, “Whereas the information value of a high-confidence ID may be called into question whenever non-pristine testing conditions are used, the information value of a low-confidence ID is never open to question” (p. 20). In other words, police must utilise “best practices” for identification procedures (see Wells et al., 2020), and even then, we can never be certain in real-world cases that pristine identification procedures are truly unbiased (Sauer et al., 2019). In criminal cases, it may not be possible to assure that a lineup is fairly constructed so that the suspect does not stand out, or that the eyewitness does not assume that police are presenting the lineup because they caught the culprit (for more on the future of police lineups, see Brewer, Weber, & Guerin, 2020).

Moreover, the “confidence trumps all” message ignores the reality that eyewitnesses can be exposed to contamination *before* an identification procedure ever occurs. We have known for decades that misinformation can alter eyewitness memory (Loftus, 2005), and this contamination can taint the eyewitness’s initial confidence in their identification. Recent data from the National Registry of Exonerations³ (NRE) give us reason to be wary. The NRE documented 703 eyewitness exonerations in the 2,400+ exonerations as of July 2019; these were cases in which the NRE determined individuals were convicted based on, in part, mistaken eyewitness identification. We observed that while these exonerees were initially suspected by the police for various reasons (e.g., lived in proximity to the crime scene, committed similar crimes in the past), the most common reason was because of eyewitness memory (321 [46%] of the cases) (Kenchel, Loftus, Berkowitz, 2020). Whether it was an eyewitness’s description of the perpetrator, prior familiarity with the exoneree (e.g., an eyewitness saw him previously at the grocery store), or an informal identification of the exoneree (e.g., a victim drove past the exoneree on the street and notified the police she saw her attacker), eyewitness testimony is what generally led a substantial number of the exonerees to initially become a suspect. In other words, general eyewitness memory errors, even beyond eyewitness identifications, contributed to the wrongful arrests and convictions of these exonerees. For this reason, although the Innocence Project and NRE refer to eyewitness exonerations as cases of eyewitness misidentification

and mistaken witness identification, respectively, perhaps we should consider referring to these cases as mistaken eyewitness memory.

We propose there are multiple pathways in which pre-lineup experiences could artificially bolster eyewitnesses' initial confidence. Consider the following: Imagine a store clerk is punched by a customer. The clerk describes the perpetrator to the police, and heads to the hospital for his injuries. At the hospital, the clerk reads the newspaper; it contains an article about a male arrested for punching a tourist on a bicycle. The article includes the arrested male's mugshot. The clerk, convinced the male in the mugshot is the same perpetrator that punched him, takes the newspaper to the police. The police present the clerk with a live lineup containing the arrested male from the article, and the clerk with high confidence identifies the suspect. Critically, as this hypothetical illustrates, what constitutes a first identification in a real-world case is complicated; especially when eyewitnesses see a suspect's photo on Facebook or in a newspaper prior to a formal identification procedure (Gronlund & Benjamin, 2018). For these reasons, we urge eyewitness memory researchers to recognise that eyewitness contamination may occur in real-world cases before the eyewitness's initial identification and confidence statement takes place.

Factors that mitigate the confidence-accuracy relationship

The reality is that we have yet to fully examine the myriad factors that may mitigate the confidence-accuracy relationship, particularly in real-world cases. Wixted and Wells (2017) observed that, "The fact that estimator variables have an effect on overall memory accuracy is beyond dispute; what remains unknown is what effect they have on the confidence-accuracy relationship when the data are subjected to CAC [confidence-accuracy characteristic] analysis" (p. 54–55). Similarly, researchers cautioned that, "in applied settings, a very long (and not atypical) retention interval or very dim illumination conditions (and the associated reductions in memory quality) may, for example, interact with witnesses' assumptions about the likelihood of the target being present in the lineup to influence choosing and confidence in ways we cannot necessarily predict" (Sauer et al., 2019, p. 152).

At least some research, however, demonstrates that initial eyewitness confidence is not always a guarantee of accuracy. As Dodson (2020) eloquently explained, "Although confidence can be a strong predictor of accuracy, it does not tell the whole story: Eyewitnesses can, of course, make high-confidence misidentifications" (p. 37). What are the conditions in which eyewitnesses' initial confidence matters less?

For one, the confidence-accuracy relationship is poorly calibrated for eyewitnesses of certain ages. The relationship does not hold for younger children (Brackmann et al., 2019), or older adults. Children under 11 years old

have a tendency to be overconfident in their inaccurate identifications (Brewer & Day, 2005), and the value of an eyewitness's confidence is reduced when the individual is 40 years old or older (Martschuk et al., 2019).

Another concern is that the confidence-accuracy relationship breaks down when lineups do not use pristine conditions (Wixted & Wells, 2017) and when there is a greater risk the suspect is innocent (e.g., the innocent suspect looks similar to the perpetrator) (Sauer et al., 2019).

Recent research demonstrates that the confidence-accuracy relationship is further compromised based on the eyewitness's general ability to recognise faces (Dodson, 2020; Grabman et al., 2019). While individuals with excellent facial recognition ability displayed a strong confidence-accuracy relationship, the confidence-accuracy relationship for average or weak facial-recognizers was more variable. Specifically, weak facial-recognizers who were 100% confident tended to be roughly 60% accurate in their identification.

Furthermore, research suggests confidence alone is not the most indicative of accuracy (Dodson, 2020). Instead, the speed with which an eyewitness identifies a suspect from a lineup is also of extreme value (within a few seconds is key). In fact, the combination of identification speed, initial confidence, and face recognition ability are more diagnostic of identification accuracy than confidence alone (Grabman et al., 2019).

Conclusion

Even if research generally suggests highly confident eyewitnesses are largely accurate and that not very confident eyewitnesses are largely incorrect, we are still a long way from concluding that an eyewitness's initial high confidence in a real-world criminal case is a guarantee of accuracy (Sauer et al., 2019). More research is needed to define parameters on the value of the confidence-accuracy relationship. In the meantime, we must be vigilant as scientists (and expert witnesses) not to exaggerate the diagnostic value of an eyewitness's initial high confidence in real-world cases especially given that jurors rely heavily on an eyewitness's confidence (Garrett et al., 2020). Moreover, judges and juries should be advised of the problems with courtroom confidence, and judges should be wary of the suggestive circumstances surrounding in-court identifications.

We have long been interested in the application of psychological science to the legal system, and we recognise that courts are sometimes slow or even resistant to incorporating science (Balko & Carrington, 2018; Doyle, 2005). We also recognise that errors in the legal system do occur and have severe consequences (Garrett, 2017; Vitale, 2018), and that it is a great privilege and responsibility to aid the trier of fact in understanding the science. Thus, we call on psychological scientists who consult as expert witnesses to testify accurately to the state of the

science and to not cherry-pick or exaggerate particular findings.

Key points

- An eyewitness's initial confidence in their first identification may have value in some contexts.
- In DNA exoneration cases, we do not have contemporaneous records of the eyewitnesses' initial confidence in their identifications.
- There are some conditions that reduce the strength of the confidence-accuracy relationship (e.g., age of the eyewitness, lineups where the suspect is likely innocent, biased identification procedures, facial recognition ability of the eyewitness, etc.).
- We are far from understanding the value of an eyewitness's initial high confidence statement in real-world cases where conditions are not pristine.
- Recording eyewitness interviews and identification procedures is necessary to ensure we have a faithful record of the eyewitness's initial confidence, their decision-time, and the circumstances surrounding the eyewitness's recollection and identification.

Notes

1. Although, not all courts have appreciated the science of eyewitness memory (see Berkowitz & Javaid, 2013).
2. Data collected concerning these cases is also available in an online research repository (www.convictingtheinnocent.com).
3. The NRE maintains a database of all exonerations – both DNA and non-DNA – in the United States since 1989.

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ORCID

Elizabeth F. Loftus  <http://orcid.org/0000-0002-2230-6110>

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