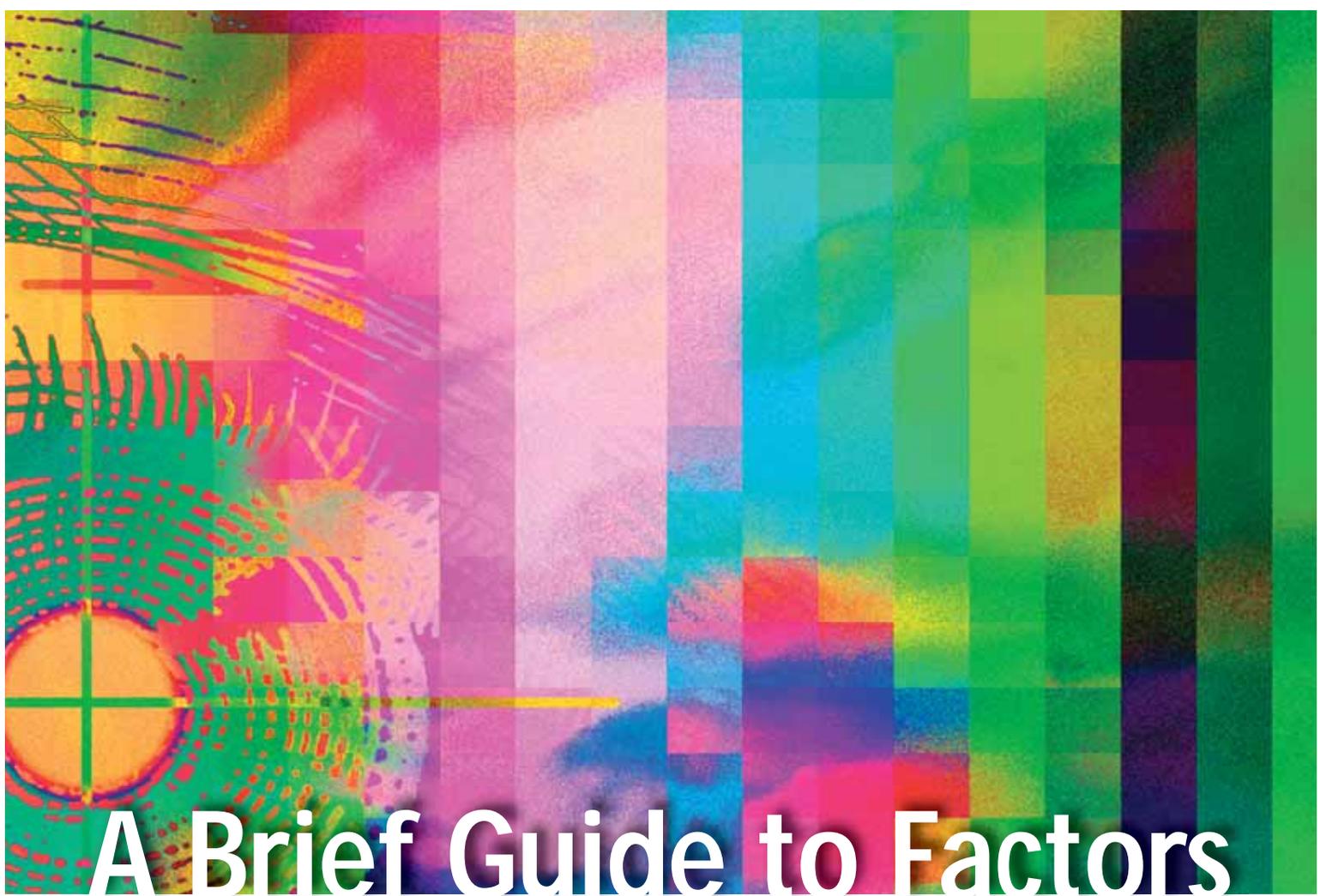


**NANCY FRANKLIN** ([nancy.franklin@stonybrook.edu](mailto:nancy.franklin@stonybrook.edu)) is a professor in the Psychology Department at Stony Brook University, specializing in human memory and cognition. She received her Ph.D. from Stanford University in 1989.

**MICHAEL GREENSTEIN** ([michael.greenstein@stonybrook.edu](mailto:michael.greenstein@stonybrook.edu)) is completing his Ph.D. in Psychology at Stony Brook University. His research specialties include human memory and cognition.



# A Brief Guide to Factors That Commonly Influence Identification and Memory of Criminal Events

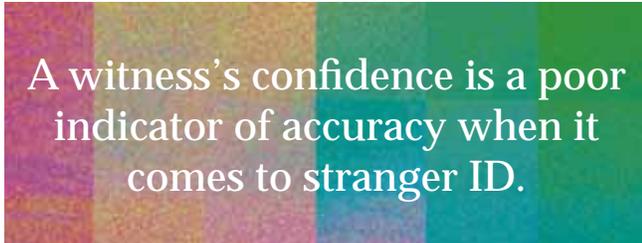
By Nancy Franklin and Michael Greenstein

**B**y a conservative estimate, mistaken IDs lead to thousands of wrongful convictions each year. Even under the best circumstances – good perceptual conditions, no stress, and an ID made soon after exposure – people correctly identify unfamiliar faces only about half the time and make misidentifications about a quarter of the time. Several factors, many of which are characteristic of criminal situations, not only further reduce the number of correct IDs but also increase false IDs. This article provides a (by no means exhaustive) review of some of the factors known to affect ID accuracy.

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## Weapon Focus

Natural selection, over millions of years, has favored directing our attention to threatening objects, such as the breakaway rock hurtling toward you, the predator's claws, or the weapon in your attacker's hand. Eye-tracking studies in the lab have corroborated this, showing that attention is diverted toward weapons and away from other details, including the perpetrator's face. Despite this, witnesses' tendency to later choose someone in an ID task – a lineup, for example – is high, leading to high rates of misidentifications for situations that involved a weapon.



## Stress

When people are under stress, the increased activity of the brain's primary threat-processing structure, the amygdala, fundamentally impacts cognition. Stress narrows attention and perception, even when no weapon is present, and thus identification suffers. Although most of the research in this area has been in the lab, we can illustrate this with a study conducted by the U.S. military. In that study, military personnel underwent an intensive training exercise to simulate capture, detention, and interrogation. All of the trainees were interrogated for 40 minutes under either high or low levels of physical confrontation and threat. After release, all were given an ID task. Even though all recently had 40 minutes of clear, close, well-lit exposure to the interrogator, the high-stress captives made correct lineup IDs only about 30% of the time and made misidentifications about twice as often. The lower-stress captives also performed rather poorly, making false IDs 38% of the time.

## Flashbulb Memory

The above findings may seem counterintuitive because some personally salient memories ("flashbulb memories") feel emblazoned immutably, as if the experience can be re-played in all its detail. For Jennifer Thompson, a rape victim, the face of her attacker was there in her memory, hovering over her whenever she re-played her memory of the rape. When the police named Ron Cotton as a suspect and she identified him as the perpetrator, she had a clear and deliberate look at him. His face then replaced whatever memory she may have had of her actual attacker, Bobby Poole, to such an extent that when she was later presented with Poole, she angrily denied that he was the rapist. (We'll discuss the phenomenon likely underlying her error, the "Mugshot Exposure Effect," below.)

Flashbulb memories are characterized by people's extremely high levels of confidence in their accuracy. But, in fact, they produce patterns of forgetting and distortion similar to those of more mundane memories. Flashbulb memories are an impressive example of the low correlation between confidence and accuracy that is often observed with memories surrounding crime.

## Confidence

A witness's confidence is a poor indicator of accuracy when it comes to stranger ID, for at least two major reasons. First, people tend not to realize how unreliable memory is for accurate recall of strangers' faces. Second, several factors in criminal ID procedures artificially inflate witness confidence. For example, a witness's perceived completeness and vividness of the memory increase simply as a result of repeatedly thinking or speaking about the event. Although the genuine memory is slowly decaying with time, confidence often increases, for both accurate and false details, making confidence an even poorer indicator of accuracy as time progresses.

## Post-Event Information/Suggestibility Effects

The function of human memory and the goals of the criminal justice system are somewhat at odds. The justice system seeks an accurate report of the crime itself from the witness, with no additional assumptions beyond what was seen and no supplementary information that the witness may have gotten afterwards. The function of human memory, on the other hand, is to create as coherent and complete a model of the event as possible. Because of this, memory frequently updates as one is exposed to new information, or other people provide input, or the original memory is reinterpreted or filled in. Memory is a product of all these sources and is *always* subject to further change. Humans are excellent at these sorts of embellishments, but we are lacking in our ability to keep track of where the various aspects of a memory came from. It is thus very easy, and very common, to sincerely but mistakenly "remember" details that were actually incorporated into memory after the fact.

## Social Contagion

When multiple witnesses see a crime, they are very likely to discuss it. One witness's report of a false event may lead co-witnesses to incorporate and later falsely remember that same information. This *social contagion* of information is especially problematic because courts generally consider multiple witnesses to be independent sources. This may help to explain the disturbing finding that in 38% of cases later overturned on DNA evidence, multiple eyewitnesses had identified the same innocent suspect.

CONTINUED ON PAGE 14

### Leading Questions

Police officers have to articulate their questions somehow, and the form of the question may influence the memories that witnesses report to them. In one classic demonstration, subjects viewed a traffic accident. They were then asked about the speed of the cars, a piece of information that a police officer typically might ask of a witness. Those asked how fast the cars were going when they “smashed into each other” gave higher speed estimates than those asked about the speed when the cars “bumped into each other.” The “smashed” group also tended to falsely remember broken glass at the scene, while the “bumped” group did not.

Salient personal events from one’s own life are not immune to these effects. In 1995, Dr. Elizabeth Loftus and her student Jacqueline Pickrell asked their participants to recount details of various events from childhood, including one event that was known to have not actually occurred – getting lost in a mall at age 5, being rescued by an elderly person, and then reuniting with their family. Simply being asked about this non-event in three interviews produced detailed false memories for 25% of participants. Other research using a similar technique has produced even more fantastical childhood “memories,” complete with details and high confidence in the accuracy of the memory. This technique, being asked to report any remembered details about a particular event, is essentially what a witness would encounter during a series of interviews by police, detectives, and attorneys.

### The Identification Procedure

Witnesses bring decision biases with them to the identification. For example, people have a tendency to choose *someone*, typically choosing the person most closely resembling their memory of the perpetrator. Some municipalities have adopted ID procedures intended to lower the risk of such relative judgments. One of these methods is sequential presentation, with no indication of how many will be presented, and with each face shown only once. If the witness says “no,” the face is not presented again.

### Show-Ups

A show-up is when a single suspect is viewed by a witness or victim. The risk of false identifications of police suspects, coupled with inflated confidence in one’s own memory, is particularly high with show-up procedures. This may be due both to the suggestive nature of show-ups themselves and to witnesses’ tendency to make an ID.

### Filler Selection

Lineup fillers should be selected to match the witness’s description, rather than to match the suspect. The gold

standard for a fair lineup is that a naïve person would do no better than chance at choosing the real suspect simply by reading the witness’s description. Real-world criminal lineups often fail this test. This certainly contributes to the rate of false IDs and helps to explain the high rate of multiple-witness false IDs mentioned earlier.

### Instructions

The information witnesses are given before attempting to make an ID is crucial. The officer who invites a witness to the ID procedure should avoid implying that the police have a suspect, and the ID administrator should clearly state that the perpetrator may not be present. In addition, witnesses can be easily swayed by seemingly innocuous questions (“Could that be him?”) and seemingly conservative instructions (“Take your time” or “Look at each picture carefully”). These latter instructions may imply to witnesses that the perpetrator is indeed present, and their rate of making any ID, including a false ID, increases. Appearance change instructions, which, for example, highlight the fact that the perpetrator may have altered his or her hair, also increase false IDs by making witnesses more willing to tolerate feature mismatches.

### Feedback

One might think that positive feedback from the administrator after an ID is made would carry no risk. However, positive feedback leads witnesses to overestimate the clarity and duration of the initial view, and it boosts their confidence. Because of the risks of instructions and feedback, and because cues can often be unintentional and subtle, the ID procedure should be administered by an officer who does not know who the police suspect is.

### Identification Time

Genuine face recognition tends to occur quickly and, indeed, rapid IDs are more likely to be accurate than those following prolonged scrutiny. Care should be taken in applying this principle, though, since recognition as a result of Unconscious Transference or Mugshot Exposure (see below) may be rapid but may not accurately reflect memory of the *perpetrator*.

### Unconscious Transference and Mugshot Exposure

People are very good at incorporating post-event information and suggestion into memory for an event, but not very good at identifying where each detail came from. Simply put, we are better at recognizing something than we are at identifying its source. We often use inferences to judge a memory’s original source, and we may well be wrong.

Now, imagine how this can lead to error in an ID situation. A sense of familiarity indicates that you’ve seen the person before. You are not aware that you have simply seen him dozens of times around the neighborhood.

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Instead, in the suggestive context of an ID procedure, you mistakenly ID the person as the perpetrator. This is *unconscious transference*.

The *mugshot exposure effect* is related to unconscious transference and presents real concerns for a criminal justice system that considers show-up, mugshot, lineup, and courtroom IDs all to be independent sources. Prior

how profound these effects can be. For example, changes in *lighting*, *shadows*, and *angle of exposure*, even relatively minor ones, can be devastating to ID accuracy. People may recognize that longer *exposure duration* increases ID accuracy (within limits), but it is important to note that witnesses frequently overestimate duration by a factor of 2 or 3. Then there is *distance*. With regard to the distance



Positive feedback leads witnesses to overestimate the clarity and duration of the initial view, and it boosts their confidence.

exposure to a face may increase its familiarity but may not be accompanied by the memory's source. So when one sees the familiar face during a criminal ID procedure, the risk of a misidentification is increased. This can happen in a variety of circumstances, including a show-up followed by a lineup, inspection of a mug book showing multiple instances of the same person on different pages, or a witness's repeated consideration of a lineup member or mugshot during the course of a single ID procedure.

This increased likelihood of an ID does not require that the person be selected in the initial encounter; simple exposure is enough. But if a witness incorrectly identified a face during mugshot exposure, the likelihood of a false ID later increases even more – called the *commitment effect*. While multiple identifications of the same suspect by the same witness may seem compelling to triers of fact, this consistency may be the unfortunate result of exposure.

### Perpetrator's Race

The best way to process a face is holistically, noting the *relations between* its parts. People tend toward this type of processing for faces of their own race but rely on individual features for other-race faces. This reflects a selective perceptual expertise that is already in place in infancy. The outcome is that cross-race identification is consistently worse (with both lower correct IDs and higher false IDs) than own-race identification. Most of the studies have involved black and white witnesses and target faces, but the same selective-perception effect has also been shown with many other combinations. Although it appears that having close relationships among members of the other race can reduce the effect, simple exposure within an integrated community does not help much.

### Perceptual Factors

While it seems self-evident that perceptual factors affect identification accuracy, you might be surprised to find out

from which a crime is witnessed, there is a dramatically rapid reduction of optic information, even at medium ranges, which leads to surprisingly poor ID performance.

### Partial Disguise

Perpetrators often wear hats, hoodies, sunglasses, or bandanas, covering important features that witnesses might have used to identify them. Correct IDs are reduced by more than half as a result. And, as so often happens, because the impulse to choose remains high, false IDs increase by quite a bit. This becomes an especially high risk in cross-race identifications. Unfortunately, placing hats on all of the lineup members cannot make up for the lost information, though it can increase the risk of false IDs even further.

### Consequences

Crime victims and witnesses likely realize that their behavior at a lineup or show-up could have life-altering consequences for the person they identify. So, one might expect real-world witnesses to be more conservative than subjects in the lab, where identifications carry no such consequences. The data don't consistently bear this out, however, and this may be because victims and witnesses are strongly motivated not to let the perpetrator get away. In fact, real-world witnesses show a strong tendency to choose, and it appears that bias to make an ID may increase as a crime becomes more reprehensible.

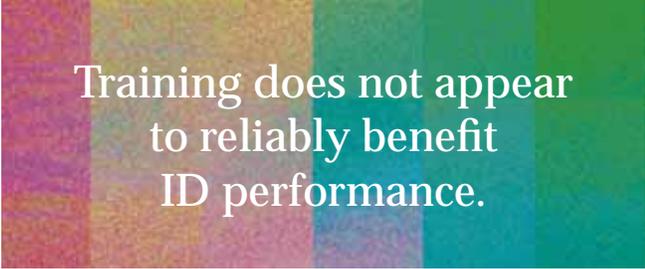
### Voice Identification

Despite its flaws, identifying individuals' faces is superior to identifying their voices. People attempting a voice ID tend to show both high false identification rates and extreme overconfidence.

### Characteristics of the Witness

Several variables that characterize individual witnesses or their current state have been investigated. We will address two here.

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## Training does not appear to reliably benefit ID performance.

### Age

Young adults tend to be better witnesses than children or older adults, with declines in the older group starting in middle age. Thus, the findings from lab studies, which rely heavily on young adult participants, may actually *underestimate* error rates.

### “Trained Observers”

Contrary to a commonly held belief, training does not appear to reliably benefit ID performance. For example, police officers are no better at identification than laypeople, and they show typical patterns of misses and errors.

### Considerations Regarding Pre-trial Hearings

Prior to trial, the factors described above (and many others) are frequently subjected to hearings in which the judge first determines which topics, if any, a memory expert will be allowed to address at trial. Two important criteria contributing to the judge’s decision are (1) whether there is sufficient agreement among experts in the field on the various findings under consideration, and (2) whether these findings are beyond the ken of the average juror.

### Expert Agreement

To address the issue of scientific consensus in a way that would be easily interpretable in a courtroom, a handful of scientific surveys have directly asked relevant experts to assess the quality of evidence concerning various topics. These surveys provide some value, though they certainly have limitations. First, a survey can only include so many questions, so some will always be left out. This exclusion should not be taken to mean that the factors are not important or agreed upon. Second, the precise wording of a question might have significant impact on answers, which may suggest disagreement when in fact there may simply be more than one legitimate interpretation of the question. Third, surveys are frozen in time, while science is ever-evolving. Many experts have little choice but to refer in court to a survey that is now more than 10 years out of date. Although none of the topics that were considered reliable in 2001 has fallen out of favor, several now have stronger consensus for reliability than are reflected in that classic survey.

Most important, scientists don’t evaluate the general acceptance of principles by taking votes. (Imagine a roomful of physicists deciding, by a show of hands,

whether they agree on the reality of gravity.) We subject our work to ongoing scrutiny by colleagues, through grant applications, conference presentations, and manuscript submissions to scholarly journals. All of us are motivated not to waste time studying non-effects. Through a scientific evolutionary process, the real, replicable, and stable phenomena emerge. General acceptance is the product of good science, the application of statistical techniques, and collegial communication.

### Beyond the Ken?

Laypeople have it wrong much of the time. For example, nearly 90% believe that stranger identifications are likely to be “very” or “somewhat” reliable.

Laypeople’s intuitions about many of the factors affecting eyewitness memory tend to be similarly off. While it is encouraging when their intuitions point in the right direction, laypeople often substantially underestimate the degree to which an eyewitness’s memory of an event is influenced by both outside and internal factors. Laypeople may not understand that a real impairment exists (e.g., cross-race ID) or may believe that certain witnesses are not affected (e.g., the superiority of trained observers). Occasionally, lay intuitions are diametrically opposed to reality, as when the majority of people believe that the more violent the criminal act, the more accurate will be the memory of the details of that crime. Altogether, this poses a risk that jurors will evaluate the facts of the case ineffectually.

Judges are in a difficult position when they use their intuitions about whether particular topics are beyond the ken of jurors. To correctly make this assessment, they need to see past their own knowledge, a very difficult thing to do. In fact, once people become aware of a fact, they often forget what their *own* previous beliefs had been.

### Conclusions: What Can We Say About Eyewitness Memory and Identification?

Is memory terrible? No! Perception is largely selective and constructed, and memory is selective and reconstructed. These principles allow the cognitive system to be powerful in an imperfect world where recording every detail of every moment of one’s life simply isn’t an option. Our cognitive system is amazingly sophisticated but ill-suited to the type of task required for courtroom examination. We’re simply not equipped to disentangle our interpretations, inferences, and post-event information from a memory, and we’re relatively poor judges of our own and each other’s abilities. It is easy to see how sincere, honest witnesses can make false identifications and report details that didn’t happen, and it is easy to see how jurors may rely heavily on this testimony when making their decisions. ■

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