

Eyewitness Memory & Identification

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Eyewitness memory is well known to be fragile and malleable. Techniques for eliciting extensive eyewitness accounts of events and accurate identifications have been the subject of laboratory research by experimental psychologists for more than a century. For the past three decades research has focused on the conditions under which eyewitness memory is unreliable and on strategies for its best use. Our intention here is to briefly summarize important research findings on eyewitness memory and, where applicable, to comment on how this information might be used in a trial context.

The cognitive processes that underlie memory for any given situation are generally believed to involve three key phases. First, when an individual attends to an object or information, that information is "encoded" or brought into the cognitive system. A variety of factors can influence a person's ability to direct attention and cognitive resources during the encoding process, and can thereby limit the amount or quality of information brought into the system. Second, once encoded this information is "stored" in memory until the person needs to access it again. Storage of objects and events in memory is an ongoing process which is punctuated by many episodes of the third phase of memory: retrieval. Retrieval episodes occur when an external cue or a cue from within the witness' own thought processes leads to recollection of some aspect of the object or event. During an extended storage period there may be many retrieval episodes, and some of these may change the original memory, replace it or render it more or less likely to be retrieved in the future. The time between storage and retrieval of the information is referred to as the "retention interval." During this time and the periodic retrieval episodes, a number of factors can influence the reliability of the information that has been stored. Furthermore, the manner in which the information is

retrieved from memory (e.g., the interview technique that is applied), the cues that give rise to retrieval, the information that is generated or obtained as a result of retrieval (remembering) can influence the quality and quantity of information that is reported. Together, these three phases encompass the "information processing" model of memory.

Eyewitness researchers have applied the information processing model as a method for organizing and understanding factors that may influence the reliability of information obtained from a witness. We have organized our discussion of this research into four general categories of effects on eyewitness memory, namely: (1) attributes of the witnesses themselves, (2) attributes of the perpetrator of the crime, (3) attributes of the events observed, and (4) attributes of the law enforcement procedures used to obtain evidence from witnesses. The first and third categories tend to have an effect on the encoding and storage of information (i.e., the first two stages of information processing). The justice system has little or no control over criminal events, thus, the presence or magnitude of factors that influence encoding can only be estimated from imperfect sources, such as eyewitness reports and subjective estimates. The second factor, attributes of the perpetrator, involves variables that will often interact with attributes of the witness to influence encoding and storage of information. On the other hand, factors associated with law enforcement procedures (e.g., the type of interview protocol or lineup identification test employed) will generally occur during the retention interval or at the time of retrieval from memory (i.e., the third stage of information processing). Because the criminal justice system has control over the types of interactions they have with the witness during these procedures, these factors, referred to as "system" variables, are subject to regulation and control. It is more likely that verifiable

records of these procedures and policies are preserved for future evaluation.

Attributes of the Witness

Prominent among witness attributes are these: the age of the witness, the influence of alcohol/drugs on witness memory, the "race" of the witness in relation to the "race" of the offender, and the occupation of the witness. Below, we briefly discuss these attributes and explain how each may influence witness' memory as they attempt to recall a criminal event or recognize a perpetrator.

Age. Across the lifespan eyewitness memory remains relatively stable, except at the extremes (i.e., young children and the elderly), where memory performance tends to be less proficient. Young children, in general, are very limited in their ability to recall information about an event. Even though children recall less information about an event than do adults, the proportion of correct information they recall does not generally differ. Research also shows that children are less accurate when identifying faces and are more likely to choose during an identification task in comparison to adults. This increased likelihood of choosing has been shown to lead to an increase in false identifications, especially in lineups where the perpetrator is not present (target-absent lineups). Children are also more susceptible to the influence of suggestive questioning and misinformation than adults are. The differences between children and adults are generally apparent up until the children reach their early teens and from then on, there is no detectable difference in eyewitness accuracy.

Elderly adults are more likely to make false identifications. Some studies find age differences to be substantial. Elderly individuals have been observed to make from 25% to 50% more identifications (most of them false) than young adults.² Recent studies indicate lower quantity and quality of recall, lower rates of correct identifications, and higher rates of false identifications for elderly participants.

Alcohol. The influence of alcohol on eyewitness accuracy has been examined in only a small number of laboratory studies, and they have shown mixed results. When findings indicate a significant relationship between alcohol intake and eyewitness accuracy, it is the intoxication levels at the time of an event that lead to a decrease in both the amount of information recalled and the accuracy of an eyewitness' identification. The type of error witnesses tend to make in these instances are false identifications, or identifying innocent suspects, rather than failing to identify the actual perpetrator. The general belief is that alcohol and drugs alter the perceptual processes of eyewitnesses, which influences their ability to encode and store information (i.e., the first two stages of information processing).

There is an extensive literature on the effects of alcohol on memory outside of studies focused specifically on eyewitness contexts. The major finding on the effect of alcohol is that it interferes with the formation of long term memory (entering memories into the storage phase) and thereby decreases subsequent ability to recall.³ Researchers have not investigated the effects of high alcohol or drug intake levels on eyewitness reports.

"Race", Ethnicity, and Gender. There is no evidence to suggest that individuals of a particular race or ethnicity are superior at remembering faces or recalling event information. Similarly, there is no evidence to suggest that men and women differ in their memory performance.

Occupation. Based on the widely held assumption that law enforcement officers are superior at identifying faces, laboratory studies have examined differences in laypersons' and police officers' memory for an event. This research has found that officers and laypersons accurately identify perpetrators at the same rates. However, officers tend to provide better quality descriptions of criminal events compared to laypersons and are generally less susceptible to the influence of post-event information. This should not be taken to mean that officers are immune to the effects of poorly constructed lineups, repeated viewing of composites or other biased forms of identification. Identification procedures administered to officers should embody by the same safeguards that accompany lineups administered to other witnesses.

Confidence and Accuracy. A common assumption, shared by the U.S. Supreme Court in *Neil v. Biggers*,⁴ is that eyewitnesses who are more confident in their identifications are also more accurate. The large body of research on this topic, however, contradicts this assumption by showing only a weak relationship between confidence and accuracy.⁵ Recent studies have indicated that highly confident witnesses (e.g., 90-100%) can be diagnostic in their identifications, and that certain factors (e.g., encoding strategy, face vs. voice identification) can influence the diagnostic value of high confidence judgments.

Performance feedback can also influence confidence judgments. Law enforcement officials or other witnesses sometimes provide feedback to witnesses about their identifications. In addition, inferences made by witnesses may influence confidence. For instance, if a witness's identification results in prosecution, the witness's confidence in his/her choice will likely increase. Such confidence inflation may alter a witness's memory for other aspects of the crime event, such as the time spent viewing an event, or the speed at which the witness recognized a suspect as the perpetrator ("I knew immediately it was him."). As a result, officers should obtain confidence judgments immediately following an identification response, prior to the witness hearing any confirming

feedback that may inflate confidence. Subsequent statements of confidence should be viewed as probably invalid, and in-court confidence statements ought to be suppressed because of their questionable validity and probable impact on the jury.

To summarize:

1. Young children make more false identifications and are more susceptible to the influence of misinformation. Elderly adults show lower quality and quantity of recall, fewer correct identifications and more false identifications.
2. Alcohol intoxication at the time of an event works against the formation of memories and is likely to reduce subsequent event memory and identification accuracy.
3. The "race", or ethnicity, and gender of an eyewitness generally has no influence on the accuracy of that witness' identification.
4. Police officers provide somewhat better event descriptions and tend to be less influenced by post-event information than laypersons. However, there is no difference between the two groups in identification accuracy.
5. The confidence-accuracy relationship is weak, although some studies have indicated that high confidence can be diagnostic under certain conditions. Confidence is also easily manipulated, and therefore should be obtained immediately following an identification response and prior to any feedback being provided to the witness.

Attributes of the Event

Certain characteristics of the event itself can constrain a witness's ability to encode and store event information. Such factors may include the duration of exposure, viewing distance, visibility, stress or fear evoked by the event, and the presence of a weapon.

Duration of Exposure. The length of time a witness views an event influences eyewitness memory. The shorter the time that a witness has to view an event the less accurate are their reports and identifications. Even though this general relationship exists it is difficult to determine an optimal viewing time (e.g. a 10-second viewing time compared to 20 seconds). Additional factors, such as witness attention and interest in the crime event, need to be taken into account.

Viewing Distance and Visibility. Generally speaking, the further a witness is from the event the less s/he will be able to accurately report on the event and the less diagnostic their identification of the perpetrator. Time of day and illumination at the scene also play an important role – poor lighting and illumination will obscure perception and reduce the amount of information available for encoding.

However, reliable estimates of crime time duration, illumination, distance, etc, and witnesses' degree of attention to various elements of an event are imprecise and therefore difficult to use as a basis for evaluating the likely accuracy of eyewitness performance, except at the extremes.

Stress and Fear. Many studies have evaluated the influence of various levels of stress/fear on eyewitness recall and recognition accuracy. Because witnesses frequently experience stress during crime events, this is an important factor to consider in eyewitness research. However, it is difficult to simulate such high levels of stress in research laboratories while maintaining proper ethical standards, thus most of the studies conducted on the effects of stress on eyewitness performance induced comparatively low levels of stress. Until recently, the effect of arousal on eyewitness memory was understood within the context of 'Yerkes-Dodson law'. This 'law' posits that very low and very high levels of arousal (i.e. stress/fear) have a negative effect on the ability of an individual to encode information about an event or recognize previously presented information. However, a recent meta analysis of several dozen studies⁶ argues that arousal experienced by eyewitnesses is likely to be of two distinct types. The first type of arousal is mild and elicits an orienting response (i.e. the witness diverts his/her attention to an emergent event). The second type of arousal is much higher, which tends to produce an increase in memory accuracy as arousal increases. Accuracy increases only to the point where arousal becomes extreme, and then memory performance declines dramatically, even catastrophically. Increased stress, or engaging in emotionally charged events, significantly decreases both recall and recognition accuracy. Few studies in the literature simulate this second type of arousal, thus, information pertaining to stress and accuracy can only be obtained from studies in which moderate levels of arousal were investigated.

Weapon Focus. When a weapon is used in the commission of a crime, witness description and identification performance tends to decline⁷. Researchers attribute this effect to the ability of a weapon's presence to distract witnesses' attention away from the perpetrator and toward the weapon. Witnesses use additional attention resources to ascertain the perpetrator's intentions to use the weapon. Because of this distraction, the amount of information encoded about the perpetrator's physical appearance or characteristics of the event decreases significantly. The effect on memory is greater for facial descriptions than for identification. Interestingly, the weapon focus effect does not seem to correspond to increased levels of stress/fear. For instance, the effect occurs regardless of whether the witness is the direct victim of the crime or is under direct threat from the weapon.

To summarize:

1. The less time an eyewitness has to view an event, the less information they are able to encode and, thus, the less accurate they are likely to be in their descriptions and identifications.
2. The further the distance between the eyewitness and the perpetrator the less accurate they are likely to be in their descriptions and identifications.
3. Anything that reduces the ability to encode information into memory (i.e. light levels, obscured illumination) will decrease the accuracy of eyewitness descriptions and later identifications.
4. High levels of stress or fear may hinder the accuracy of eyewitness descriptions and identifications, even if the witness were trying to be attentive to the aspects of the crime. Even when a witness was trying to focus on the aspects of the perpetrator, if that witness was under the influence of high levels of stress/fear they are more likely to be inaccurate in their descriptions of the event and later identifications.
5. The presence of a weapon during the commission of a crime decreases the accuracy of eyewitness descriptions and identifications, regardless of whether the witness is directly threatened by the weapon.

The factors surrounding the criminal event are somewhat weak issues for trial unless the level or degree of the factor is quite strong and obvious. Although these relationships may be detectable in laboratory studies, the relationships are relatively small, except when present at their extremes. Also, it can be difficult to establish with any certainty the strength of such factors after an event has occurred. If, however, independent information is available to support a strong influence of one or more of these factors, arguments about this evidence are strengthened. For example, if a witness can give a detailed description of a weapon and the threat gestures for which it was used a better case for weapon focus could be made.

Attributes of the Perpetrator

Disguise. Disguises work. The configuration of a face may be more important to accurate recognition than specific facial features. The upper regions of the face, in particular, tend to contribute to successful recognition.⁸ As a result, the presence of hats, glasses, hoods, etc. can significantly interfere with face recognition and are most likely to deter successful encoding for subsequent identification. Stocking masks and plastic masks that distort the appearance of underlying features may also have

appreciable effects. Geometric disguises such as those used by clowns, or the rock band KISS⁹ can similarly disrupt encoding of facial information.

Distinctiveness and Typicality. Research has demonstrated that it is difficult to differentiate between "typical" faces, given that they often share features and configural properties with other faces. As a result, typical faces are frequently subject to false identification in a memory test. In contrast, witnesses may better remember faces containing "distinctive" features (such as a protruding chin or birthmark) and thus be able to distinguish these distinctive faces from other faces at the time of an identification procedure. Recent research also revealed that witnesses falsely identify faces perceived as "criminal" in appearance more often than faces perceived as "average".

"Race" and Gender of the Perpetrator. There is no evidence to suggest that any particular national, ethnic or "racial" group is more difficult to recognize than any other group. However, there does appear to be an important interaction between the "race" of the witness and the "race" of the perpetrator. Over 35 years of research has consistently demonstrated a *cross-race effect*, which states that individuals are better at identifying faces of their own "race" compared to faces of other "races". A recent meta-analysis¹⁰ of this phenomenon indicated that individuals were 1.40 times more likely to correctly identify an own-"race" face and 1.56 times more likely to false identify an other-"race" face. Furthermore, researchers have demonstrated the *cross-race effect* at all stages of the life span, including children and the elderly, and in field experiments involving salient criminal-like events and lineup identification tasks. While researchers have been able to consistently demonstrate this phenomenon, they continue to lack full understanding of why the effect occurs. A handful of studies have indicated a small relationship between prior interracial contact and the *cross-race effect*. However, it appears that much more than superficial contact with another "race" is important to eliminating the effect.

There is some evidence that female faces are recognized more easily than male faces. Though the cause of this is unknown, some have posited that the memorability of female faces may be enhanced by the salience of their hair styles (a prominent feature that is attended to in the recognition of faces). Similar to the cross-race effect, some researchers have found an interaction between the gender of the witness and that of the perpetrator – but only in the responses of female witnesses. In particular, female witnesses tend to show superior performance on female faces compared with male faces. The underlying cognitive processes responsible for this effect still elude researchers.

Familiarity. Familiarity plays a strong role in the recognition of faces. If the witness knows and identifies the suspect by name, it is rare that the identification will be in error. One exception to this rule is in situations where encoding conditions are not optimal (extreme distance, poor lighting, etc.) and the witness makes an inference of familiarity (i.e., "That's Joe Smith!") based upon poor quality information. Generally, it is possible to test such inferences by examining other factors in the case.

Throughout the investigative process, witnesses may develop a feeling of familiarity for previously unknown perpetrators, which can lead to an increase in false identifications along with inflations in confidence. For example, viewing mug shots that include the suspect's photo, and repeatedly viewing photospreads containing the suspect may increase familiarity and the probability of a subsequent identification. Following familiarity enhancing events the question arises whether the suspect is identified because of the original memory at the scene of the crime, or because of the familiarity gained through multiple viewings during the investigation. Distinguishing the source of the memory often proves difficult for witnesses. We will return to this problem below.

To summarize:

1. Disguises that obscure the upper portions of the face or which distort the overall configuration of the face are likely to be effective in reducing subsequent identification accuracy.
2. Distinctive faces are somewhat more easily recognized and less likely to be confused with others.
3. Accurate recognition for faces of other "races" is decreased in both the sense of fewer correct identifications and more frequent false identifications.
4. Identification of persons known to the witness is likely to be accurate except when viewing conditions are not good. The familiarity a witness experiences when viewing a suspect's face in an identification task can be artificially enhanced by repeated viewing of the face across many identification procedures and opportunities to view.

Obtaining Information from the Witness

From the perspective of the justice system, obtaining information from a witness is one facet of an investigation that can be readily controlled and recorded for use at trial. A wealth of psychological research has examined the variety of techniques that may be used to obtain eyewitness evidence, including eyewitness descriptions and identification responses. In discussing this research and its application, we distinguish below between techniques

used to obtain information that witnesses recall about events and perpetrators, and techniques used to obtain a perceptual identification of the perpetrator. Recommendations regarding the most appropriate procedures to preserve the reliability of eyewitness evidence are suggested.

Interview Techniques. Eyewitness descriptions of criminal events and perpetrators provide the foundation of most police investigations. A description that matches the suspect's appearance can strengthen a case, but if witnesses do not fully describe what they saw, investigators are limited in their ability to utilize this potentially valuable investigative information. Descriptions given by witnesses are often vague and incomplete. This is likely because it is difficult to access descriptive words and verbalize memories. But there are a variety of interview techniques that can assist witnesses in verbalizing the visual images in their memories.

Research has found that interviewers often interrupt witnesses as they provide descriptions, and that interviewers do not generally encourage witnesses to elaborate on the descriptors they provide¹¹. Interruptions can lead to a significant loss of information, as a witness's train-of-thought is broken and may prevent them from accessing relevant information.

Allowing witnesses to 'freely recall' whatever they remember about the event and perpetrator without any interjections from the interviewer can substantially increase the amount of information retrieved. The interviewer should ask more directive questions only after the free-recall is complete and then structure these questions around the content of the witness' free-recall description. Open-ended questions are more useful than close-ended questions for obtaining detailed information. By making a request to the witness to "tell me about his eyes" the interviewer is likely to get more information than if s/he were to ask, "What color were his eyes?" Another useful method for enhancing witnesses' memories is to have them visualize the event and the perpetrator. This visualization, or context reinstatement, will provide the witness with memory cues and lead to further recall¹².

These research-based interviewing techniques elicit considerably more total information from witnesses. It could be useful to the evaluation of a lineup to discover that the verbal descriptors used to assist in filler selection were only a portion of what the witness could provide under more favorable questioning. Likewise for other aspects of an event. Re-interviewing using interviewers trained in these more useful techniques could yield useful new information.

Multiple Descriptions. When witnesses give descriptions repeatedly, they tend to report more information with each additional interview – a

phenomenon referred to as “hypermnnesia.” While a majority of the additional information that is obtained from the witness is found to be accurate, engaging the witness in multiple interviews deserves some caution as multiple interviews can contaminate memory. For example, repeated interviewing has been shown to encourage witnesses to report the same information repeatedly, thus reinforcing some memories and encouraging the forgetting of information that was not reported. In addition, witnesses may introduce incorrect information during an interview session that becomes integrated into the witness’s representation of the event or perpetrator. This self-generated misinformation may be repeatedly recalled at future interviews. It is difficult for the witness (and others) to distinguish this self-generated information from an actual memory for the original event or for the perpetrator¹³.

Misinformation and Co-Witness Effects. Besides self-generated misattribution, an investigator may convey new information to a witness during the course of an interview. The witness may then incorporate this information into their representation of the event or perpetrator – a phenomenon known as the misinformation effect. Leading questions, such as “Was his beard the same color as his hair?” may similarly introduce misinformation, in this case that the perpetrator had a *beard*. If the witness did not previously report seeing a beard, he may now remember the perpetrator as having facial hair¹⁴. It is rare that interviewing techniques can be discerned from police reports, but if tapes or transcripts are available, such information could be useful in assessing the reliability of the witness’s recall.

When multiple witnesses are present at a crime scene, their memories may be contaminated before the police even arrive. Witnesses may attempt to reach consensus about what happened and what the perpetrator looked like. It is useful to determine if multiple witnesses were present and if they conferred with one another and to verify that the witnesses were separated before they gave accounts of what happened. Individual descriptions, free from the influence of other witnesses, are more informative.

Frequently witnesses give a brief description at the crime scene and are later interviewed in greater detail. Between these interviews, external events may contaminate witnesses’ memories. Witnesses may learn additional information about the investigation or discuss the event with other witnesses. They will likely discuss the event with people who were not at the scene, but who have their own crime stories to tell. This information can aid the witness in processing and interpreting a traumatic event, but it may also alter their memory to fit with this new interpretation¹⁵. Information conveyed in the media may also contaminate witnesses’ memories. The news media

may reveal case information not previously known to the witness. The witness may “remember” this information. Once incorporated into memory, it is virtually impossible to disaggregate¹⁶.

Verbal Overshadowing. Research has shown that identification accuracy decreases if a witness gives a description just prior to making an identification. This phenomenon, referred to as verbal overshadowing, has been found to sometimes negatively affect identifications by influencing a witness’ ability to identify the perpetrator in a lineup¹⁷. The more time that passes between the description and the identification the less likely that the verbal description will negatively influence the identification¹⁸. “Refreshing” a witness’s memory prior to an identification procedure by asking for another verbal description may be counterproductive, and increase the probability of a false identification.

Composites. Descriptions are not the only way to obtain a physical likeness of the perpetrator. Police sometimes ask witnesses to construct a composite. Composites are typically constructed using computer programs that have a catalog of facial features from which the witness may select to create a likeness of the perpetrator. In general, laboratory studies have show that composites tend to represent poor likenesses of the perpetrator. One reason for this poor representation is that people tend to remember faces in a holistic manner, relying on more global facial configurations rather than on individual features. Breaking faces down by features in order to make a composite may therefore limit the accuracy of the resulting facial image.

Composites can also contaminate memory by presenting to the witness an external “picture” of the perpetrator that is actually not a very good representation¹⁹. This can be especially detrimental if the composite appears in the news media or if the witness is given a copy of the composite to take home. By repeatedly viewing the composite, the witness’ memory for the original face is contaminated by incorporating features from the composite. If the police arrest a suspect based on the composite image, the witness may identify the suspect as the perpetrator even if the real perpetrator looks nothing like the composite. Given that composites are highly inaccurate, it is important to find out if one was generated and how often the witness viewed it.

To Summarize:

1. The techniques used to interview witnesses can influence witness verbal descriptions. Interruptions and closed-ended questions can limit the amount of information conveyed.
2. When witnesses give multiple descriptions more information may be obtained, but incorrect information may be integrated into witnesses’ memories.

3. Information introduced by investigators, other witnesses, the media, etc, may become incorporated into witnesses' memories. It is difficult for witnesses to determine the source of their memories, often attributing the knowledge to the crime event rather than later sources.
4. Making an identification directly after giving a description may lead to incorrect lineup identifications.
5. Composites are usually of poor quality and may permanently alter the witness' memory of the perpetrators face.

Identification from Lineups. The most important form of identification procedure is a lineup, administered live or through a series of photographs. In the U.S. photographic lineups are used more frequently. Researchers have examined potential differences across lineup styles (live vs. video vs. photographs) and have found no differences in identification or accuracy rates.²⁰ Therefore, when examining a lineup given to a witness, the focus should center on how the lineup was constructed and implemented, rather than presentation format.

Lineup Construction. A basic treatment of lineup construction is found in the work of the Technical Working Group on Eyewitness Evidence²¹. The Guide suggests the following guidelines:

1. Include only one suspect in each identification procedure.
2. Select fillers who generally fit the witness' description of the perpetrator. When there is a limited/inadequate description of the perpetrator provided by the witness, or when the description of the perpetrator differs significantly from the appearance of the suspect, fillers should resemble the suspect in significant features.
3. If multiple photos of the suspect are reasonably available to the investigator, select a photo that resembles the suspect description or appearance at the time of the incident.
4. Include a *minimum* of five fillers (nonsuspects) per identification procedure.²²
5. Consider that complete uniformity of features is not required. Avoid using fillers who so closely resemble the suspect that a person familiar with the suspect might find it difficult to distinguish the suspect from the fillers.
6. Create a consistent appearance between the suspect and fillers with respect to any unique or unusual feature (e.g., scars, tattoos) used to describe the perpetrator by artificially adding or concealing that feature.
7. Consider placing suspects in different positions in each lineup, both across cases and with multiple witnesses

in the same case. Position the suspect randomly in the lineup.

8. When showing a new suspect, avoid reusing fillers in lineups shown to the same witness.
9. Ensure that no writings or information concerning previous arrest(s) will be visible to the witness.
10. View the spread, once completed, to ensure that the suspect does not unduly stand out.
11. Preserve the presentation order of the photo lineup. In addition, the photos themselves should be preserved in their original condition.

While these recommendations do not have the force of law they were developed by a consensus panel containing experienced law enforcement officers, prosecutors, defense attorneys and research scientists and approved by two U.S. Attorneys General.

Disguise and filler choice. Choosing fillers for lineups in crimes where the offender(s) wore disguises presents interesting problems. If disguises consist simply of hats, hood, sunglasses, etc. the filler photos can be altered to look like they are wearing the same gear. If the disguise is a clown-face or a geometric design such as those used by the rock band KISS²³, the investigating officers have our deepest sympathy. The lineup probably should not use a range of different disguise patterns, so that the lineup does not become merely an identification of the disguise that is closest to the one observed at the offense. An alternative would be to use no disguise at all and present a fair lineup based on the suspect's appearance without disguise. The bad news is, disguises work.

Structural fairness of a lineup. There are two facets of lineup fairness. The first is the size of the lineup. The nominal size of a lineup is the number of fillers plus the suspect, usually 5 or 6 in the U.S. But not all of the lineup fillers may be adequate alternatives to the suspect. Just as a 6-alternative multiple choice test question with three obviously incorrect alternatives effectively contains only three alternatives, a lineup with three fillers that are obviously different from the suspect effectively is a lineup of three persons – the suspect plus two fillers. This is referred to as the lineup's "effective size".²⁴ Low effective size increases the probability of mistaken identification from one in six to one in three, if the witness is just guessing. The previously discussed quality-control issues associated with filler selection have a direct impact on the effective size of the lineup.

The second facet of lineup fairness is bias. A lineup is considered unbiased when there is an equal probability of each lineup member being chosen by chance alone. A lineup may be biased towards or away from the suspect. If the probability of the suspect being chosen by chance alone is greater than expected, then the lineup is biased towards the suspect.

Evaluation of lineup fairness. The most common method of lineup evaluation is “mock witness” evaluation. Persons who have had no prior visual exposure to the suspect, and who attempt to choose the suspect from a lineup, are termed “mock witnesses”. The evaluation process is based on these propositions:

1. Mock witnesses, on the average, should not prefer any member of the lineup. In a lineup providing the appropriate protections to an innocent suspect, information about the appearance of the suspect should have been considered in lineup construction and should provide no basis for preference of any one lineup member.
2. If mock witnesses choose certain lineup fillers at rates well below that expected by chance alone then these filler(s) are inadequate as valid choice alternatives for the witness, and inadequate to provide the appropriate safeguard against false identification for the (possibly innocent) suspect.
3. If mock witnesses can identify the suspect in a lineup with a probability greater than chance, then the lineup is biased towards identification of the suspect.

When conducting a mock witness evaluation, each mock witness should be of the same “race” as the actual witness in the case. Prior to being asked to make an identification, mock witnesses are normally given either no description of the suspect or a very brief description.

If the mock witness evaluation reveals a departure from the nominal size of a lineup, or a bias towards or away from the suspect, the lineup is not fair. If mock witnesses choose the suspect at greater than chance levels, there is potential that the actual witness will also pick the suspect for the same reasons as the mock witnesses. Real witnesses who make an identification may not actually remember or recognize the suspect from the crime but, instead base their identification on factors present in the lineup. A document setting forth the process of lineup evaluation with spreadsheets set up for calculation of important statistics is available at the Eyewitness Identification Research Laboratory website²⁵.

Mock witness evaluations should be of particular interest to attorneys because they can be implemented on a case-by-case basis. If it can be demonstrated that a lineup is structurally unfair this can be used to argue for suppression of the eyewitness identification evidence in trial. In the event that the eyewitness evidence isn't excluded, the prosecution evidence can be attacked on this basis. This is an area where external experts can provide the greatest assistance to a case.

Lineup procedure. Another important matter for an attorney to assess regarding eyewitness identification is the procedures used by law enforcement during the lineup identification process. During this process eyewitnesses are asked to identify the culprit relying on their memory in order to recognize the perpetrator. However decades of research has shown how the identification process influences and alters a witness' memory for the culprit. The manner in which a lineup is presented, the admonitions given to a witness, the number of times a witness sees a lineup, and how the lineup is administered can all influence what a witness remembers. More specifically, these factors influence the likelihood that the witness will choose to identify someone from a lineup. Law enforcement organizations vary considerably in their identification policies and training, from no formal policy or training, to clear policy statements in their policy and procedure manuals and formal training. In this section, we discuss aspects of the identification task and the influence of these factors on witnesses' identification decisions.

Instructions/Admonitions. Depending on jurisdiction, law enforcement officials may be required to administer specific instructions (sometimes called admonitions) to witnesses prior to the lineup identification task. The instructions recommended by the Technical Working Group on Eyewitness Evidence for photo lineups are these:

- Instruct the witness that he/she will be asked to view a set of photographs.
- Instruct the witness that it is just as important to clear innocent persons from suspicion as to identify guilty parties.
- Instruct the witness that individuals depicted in lineup photos may not appear exactly as they did on the date of the incident because features such as head and facial hair are subject to change.
- Instruct the witness that the person who committed the crime may or may not be in the set of photographs being presented.
- Assure the witness that regardless of whether an identification is made, the police will continue to investigate the incident.
- Instruct the witness that the procedure requires the investigator to ask the witness to state, in his/her own words, how certain he/she is of any identification.

Summary: Instructions provided to the witness prior to presentation of a lineup will likely improve the accuracy and reliability of any identification obtained from the witness and can facilitate the elimination of innocent parties from the investigation. The investigator should:

- § Confirm that the witness understands the nature of the lineup procedure.

- § Avoid saying anything to the witness that may influence the witness' selection.
- § If an identification is made, avoid reporting to the witness any information regarding the individual he/she has selected prior to obtaining the witness' statement of certainty.
- § Record any identification results and witness' statement of certainty.
- § Document in writing the photo lineup procedures, including:
 - Identification information and sources of all photos used.
 - Names of all persons present at the photo lineup.
 - Date and time of the identification procedure.
- § Instruct the witness not to discuss the identification procedure or its results with other witnesses involved in the case and discourage contact with the media.

It may be useful for defense attorneys to discover the policies of the law enforcement agency of the case jurisdiction and query both investigator and witness(es) about the procedures used in their case. If a witness believes that the offender is or is very likely to be in the lineup, and/or that his/her job is to choose someone from the lineup, then there is a 1 in 6 chance that an innocent suspect will be chosen, assuming the lineup is completely fair. The likelihood that the offender will actually be in the lineup is decreased when eyewitness identification is used early in an investigation to screen suspects, and increased when it is confirmatory in relation to independent evidence. The effects of biased instructions are well known through research, and form part of the basis for law enforcement's adoption of various admonitions to be administered. Again, this varies widely across jurisdictions.

Simultaneous and Sequential. Lineups can be administered either simultaneously or sequentially. When showing a simultaneous lineup, the administrator presents all of the photos to the witness at once. Some researchers claim that simultaneous lineups induce relative judgments, in which witnesses compare each member in the lineup to one another to determine which member most resembles the perpetrator. The simultaneous lineup is the most commonly used lineup throughout the United States, however some scientists and activists are sponsoring legislation aimed at mandating some form of sequential procedure, and some state legislatures are considering the change.

In sequential lineups, a witness is presented one photograph at a time and is (sometimes) asked to make an identification decision after each photo is presented. A sequential lineup is said to promote an absolute decision

making process, in which the witness is said to compare each photo to his/her memory of the perpetrator rather than comparing one photograph to the others. In some jurisdictions, a decision is not required for each photo in a sequential lineup, and a second (or third) pass can be made, thus negating the absolute judgment strategy. It is not clear if specific sequential procedures need to be implemented in order for this method to improve the accuracy of lineup identifications.

Sequential Safeguards. It is thought that particular safeguards are required for the sequential procedure to be effective. Therefore, it is as important to find out exactly how sequential lineups were administered, as it is for other forms of identification. It is recommended that if a sequential lineup procedure is used, both the witness and the investigator be blind to which member of the lineup is the suspect and in which position he is placed. This is called the *double blind procedure*. If the administrator knows who the suspect is, he/she might inadvertently influence the eyewitness' decision.²⁶ Additionally, in a sequential lineup, the witness may believe that they are going to see six photographs (*non-backloaded*), or that they will see more than six photographs (*backloaded*). Some researchers recommend that witnesses should be told and be shown more than six photos. When constructing a sequential lineup, the suspect should not be placed in the first position. The first photograph is usually reserved for a known innocent, as a safeguard against witnesses who feel the need to identify the first possible suspect that they see. Researchers also recommend that investigators document whether the witness was allowed to go back and see the lineup photographs more than once. If witnesses are allowed to view additional photos after their first identification, there is a possibility they will make multiple identifications. Therefore, it is useful to find out if lineup procedure was stopped after the witness made their first identification or if they viewed all the photos and made multiple identifications. All of these aspects can be important determinants in deciding whether or not lineup has been properly administered.

Evaluating the adequacy of the lineup fillers and hence the fairness of a sequential lineup can be done in the manner discussed above.²⁷

Showups. Early in an investigation, normally within a short period of time, witnesses sometimes participate in a showup, or field identification. Showups are one-person displays, in which the witness is taken to a location where the suspect is being held and asked whether that suspect is the perpetrator. A common requirement is that a show-up be done within 24 hours of the commission of the offence, however local policies vary. It may be useful to examine documents and testimony regarding show-up procedure in the appropriate jurisdiction, and in a particular case to

determine what the officer said during the show-up and what the witness thought was the task they were asked to do, including their recollection of the instructions / admonitions. As with lineups the way the identification task is structured for the witness is important. If the procedure disposes the witness to merely confirm what is perceived to be a police opinion that the person displayed is the offender, and appropriate instructions are not given, the showup can be thought of as suggestive and prone to error.

Mug Shot Searches. When the police have little information about a crime or who the suspect is, they often have the witness search through books of mug shot photos to find a photo of the perpetrator. Although this procedure may yield a viable suspect, it can also contaminate the witness's memory. If the witness does not identify anyone, but the police later apprehend a suspect who appeared in the mug book, the witness' prior exposure could result in a false identification. The witness may misremember where they previously saw the suspect and attribute the memory of the mug book photo to the crime scene²⁸. Research has found that when witnesses view a suspect's photo in a mug book and later see the suspect in a lineup, they are more likely to identify the suspect as the perpetrator and report that they remember seeing him at the crime scene, rather than in the mug book. This represents a source monitoring error that likely cannot be corrected²⁹. It is important to determine if the witness searched through mug books during the investigation, even if the witness did not identify anyone.

Post-Identification Feedback. Officers should not assist the witness in any way during the identification process. Assisting a witness includes helping them to identify the suspect by picking a photograph, as well as answering any questions that might help the witness to identify the suspect. Officers also should not pressure the witness into making an identification, or suggest that a tentative identification can be made. Repeating the instructions / admonitions prescribed by organizational policy that were initially given to the witness may be acceptable, as these themselves are subject to separate scrutiny. Ascertaining from the witness if either pressure or feedback occurred during the identification may assist with arguments about unfair or inaccurate identifications. Research has shown that individuals who receive positive post identification feedback are more confident in their identification decisions even when they are not accurate.³⁰

Multiple lineups and multiple viewings. It is important to clarify how many lineups witnesses have viewed. If they viewed multiple lineups some specific questions are in order. Multiple lineups, with different suspects and different fillers are not uncommon and do not appear to adversely affect future identifications.

Multiple viewings of the same lineup falsely increases the witness' familiarity with all members of the lineup – including the suspect - if no identification is made or with the suspect in particular if a prior identification was made. Multiple viewings of lineups containing the suspect but different fillers again exposes the witness to a repetition of the suspect's image, and will tend to make the suspect stand out from fillers as a result of the increased familiarity. The position of the suspect should be changed from lineup to lineup and from witness to witness. Investigators in a national survey of lineup procedures³¹ show that there are preferences for the positioning of the suspect. Other research indicates that witnesses may share some of the same preferences.

The cumulative effect of repeated identification tasks. If a witness sees an innocent suspect in a mug book, in one or more lineups, perhaps in a photospread and then a corporeal lineup, then sees the suspect in a hearing, it is very likely that the witness will deliver the final in-court identification with great confidence and authenticity. In view of the impact of confident in-court identifications on juries it might be useful to minimize the suspect's court appearances, to argue for suppression of the eyewitness evidence if the witness has been exposed to the suspect's image or person in a sequence of identification procedures, and to introduce a motion to disallow an in-court identification.

To summarize:

1. Guidelines for lineup construction are set forth in the USDOJ document "Eyewitness Evidence: A Guide for Law Enforcement". This covers the basics of filler choice and lineup display. Law enforcement agencies should have policies and training on lineup construction.
2. Lineups can be unfair in two ways: They can contain fillers that are not adequate choice alternatives to the suspect, and this be of an effective size smaller than the apparent 6 member lineup. And lineups can be biased towards (or away from) choice of the suspect.
3. Techniques are available for assessing the fairness of lineups in both the sense of size and bias. Law enforcement agencies should have policies and training on lineup evaluation.
4. Recommended lineup administration procedures are contained in the USDOJ document "Eyewitness Evidence: A Guide for Law Enforcement". Inadequate procedures are associated with more frequent false identifications. Law enforcement agencies should have policies and training on lineup administration procedure. Instructions and

admonitions are among the more important aspects of lineup administration.

5. Sequential presentation of photos or persons in lineups is advocated in some jurisdictions. Certain safeguards are recommended. Foremost among them is double-blind administration.
6. Showups are used under restricted conditions, and law enforcement agencies should have policies and training concerning their administration. Instructions to witnesses are important and neglect of appropriate instructions can lead to false identifications.
7. Mug Shot searches are a useful tool of investigation but may also be the beginning of a false sense of familiarity for the face of the suspect.
8. Post-identification feedback should not be communicated to witnesses because it leads to changes in witness confidence and in memory for details of the crime event and the identification process. Witnesses may provide their own post-identification feedback by inference from other events.
9. Care must be taken in the use of multiple lineups and viewings to avoid singling out the suspect from the fillers in lineups.
10. The cumulative effect of repeated identification tasks may be to develop a false familiarity in the witness for the face of the suspect. A history of identification tasks and suspect exposure should be constructed for each witness.

Distribution of knowledge. The various players in the criminal justice system have different beliefs and sensitivities about many of the topics we have discussed. Some of these have been the subject of investigation in the eyewitness identification literature. Judges who do not routinely deny suppression motions have commonsense knowledge of the harmful effects of lineup structural unfairness and instruction biases. Jurors have been found to rely on factors that are not related to eyewitness accuracy, such as the eyewitness' memory for peripheral details and eyewitness confidence. They tend to overestimate eyewitness accuracy and "have difficulty applying their commonsense knowledge of lineup suggestiveness to the verdict decisions".³²

(Endnotes)

1 From a scientific point of view, "race" is not a valid concept. Terms such as "Caucasian" as it is popularly used in North America, serves merely as a scientific sounding term for "white". But its' scientific status was discarded in the late twentieth century as a result of genetic advancements. *Homo sapiens sapiens* came to be seen as a monotypic species, not being divisible into races or subspecies. One lineage of the "caucasian" concept referred to the population

of the Caucasus mountain region. It was favored in early racial theories because of its proximity to Mount Ararat and Noahs Ark. The idea of a Caucasian Race was a central idea in the Nazi ideology of racial superiority. Another lineage of the concept is from linguistics, where "caucasian" is a category of language families that applies to populations all across Europe and western Asia, many of whom would not be characterized as "white".

"Racial" terminology is inconsistent. "Racial" terms are a mixture of regional labels (Asian, Oriental), color (black, white, yellow, brown) or language (Hispanic, Caucasian). Any of these classifications groups together people of diverse geographical and cultural origin, and encourages the most gross stereotypes. Grouping "blacks" together mixes diverse African cultures (and appearances) with indigenous Australians and many populations of southeast Asia. Grouping Hispanics together mixes Cuban, Mexican, Philippine and Spanish persons and cultures. There is no consistent and widely shared nomenclature for commonalities of culture or the physical appearance attributes referred to by the commonly used term "race". Therefore, we will use the term, uncomfortably, enclosed in quotes so as to remind the reader of this comment.

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