

Identification evidence

Chapter 7

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January 2016

Note:

The authors would like to thank Dr Nicky Brace for her invaluable feedback and input.

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Introduction

Working out who committed the crime is perhaps the most important element in any criminal investigation. If you are familiar with fictional crime drama you would be forgiven for thinking that most perpetrators are identified through some form of forensic analysis, but in reality forensic evidence is *not* a routine part of most criminal investigations. Using a prospective analysis of official US record data, Peterson et al. (2010) concluded that “Very few reported crime incidents had forensic evidence that linked a suspect to the crime scene and/or victim (~2% of all cases, 6% of cases with crime scene evidence, and 12% of cases with examined evidence.)” (Peterson et al., 2010, p. 9). Instead, it is identification by an eyewitness that tends to be the method more commonly used by police to determine the identity of a perpetrator.

Eyewitness identification evidence can be obtained using a number of methods, which vary depending on the medium used (e.g. 'live' appearance or images presented through photographs or video) and the number of people seen in the procedure. As a result there is considerable variability around the world as to the specific methods used. For example, in the US and New Zealand photospreads are the most common form of identification procedure, whilst in the UK video parades are the standard. There is also variation in the terminology used, and in this chapter the term 'lineup' will be used to refer to identification procedures generically, with more specific terms being employed when a distinction between methods is required.

Perhaps the most straightforward, but also most problematic, method is to simply present the suspect to the eyewitness and ask them if that is the person they saw commit the crime. Known as a 'show-up' in the US and a 'confrontation' in the UK, research has shown this method to be particularly prone to misidentifications (Lindsay et al., 1997). Instead, lineups are commonly used that consist of the suspect and a number of other people, known as 'foils', who resemble the description of the perpetrator provided by the witness (Wells & Olson, 2002). When determining the outcome of a lineup it is usual for the police to record a positive identification if the witness selects the suspect, with all other outcomes being classified as a negative identification (Pike, Brace & Kynan, 2002). In contrast, researchers employ four possible outcomes, based on the application of signal detection theory (Tanner & Swets, 1954).

Box 1: Signal detection and the design of eyewitness identification research

Developed to assist in improving the accuracy of radar operators, the theory describes four possible outcomes depending on whether a signal is present or absent, and whether the operator judges a signal to be present or absent, see Figure 1. For example, if the operator thinks a signal is present but one is not then the outcome would be a 'false alarm'.

		Operator judges the signal to be:	
		Present	Absent
The signal is actually:	Present	Hit	Miss
	Absent	False Alarm	Correct Rejection

Figure 1. The possible outcomes of a decision in signal detection theory

When applied to eyewitness identification the 'signal' becomes the perpetrator, which leads to a complication because it is possible for the suspect being investigated to be innocent of the crime (i.e. the suspect is not actually the perpetrator), in which case if the witness selects them then they will be making a 'false alarm' rather than a 'hit'. This also means there are two types of false

alarm, one in which the witness selects a foil and one in which they select an innocent suspect. This complication is the reason that eyewitness identification research routinely employs two conditions, one in which the perpetrator (usually referred to as the 'target') is present and one in which they are absent (thus known as target present and target absent or culprit present and culprit absent conditions). This mimics scenarios where the suspect being investigated by the police is actually the perpetrator and where the suspect is innocent. It is also the reason why experimental research that replicates eyewitness identification can be more powerful and useful than research utilising real investigations, as in the latter there is often no way of determining whether the suspect in the lineup is guilty or innocent (Horry et al., 2014).

One important lesson to learn from signal detection theory is that human operators are not capable of performing with 100% accuracy and that any attempt to increase the incidence of one particular outcome will also increase the incidence of another. For example, trying to maximise hits would entail operators increasing the number of times they judge a signal to be present, but this would have the consequence of also increasing the number of false alarms. Likewise, making fewer judgements that the signal is present in order to minimise false alarms would also increase the number of misses. With regards to identification evidence, this means that trying to increase the number of guilty suspects identified is likely to also lead to an increase in the number of innocent suspects identified. As we shall discuss later, the difference between maximising hits and avoiding false alarms is an important distinction between the aims of many practitioners and researchers.

Another difference between research and practice is that research has tended to classify variables that might affect the outcome of the lineup as either estimator or system variables (Wells, 2014). A system variable is any factor that is under the control of the criminal justice system, such as the method used to obtain the identification evidence, and an estimator variable is one that is not, such as how far away the witness was from the perpetrator. In practice, some factors are not easy to classify in this way, for example the length of time between the crime and lineup is partly, but not entirely, under the control of the justice system. In addition, the criminal justice system is not a single institution nor represented by any one person, and officers responsible for obtaining identification evidence may not see themselves as having control over many system variables beyond ensuring that relevant guidelines are adhered to (Pike, Havard & Ness, 2014).

Miscarriages of justice were discussed in Chapter 1 (by Poyser and Grieve) of this book and it is clear that misidentification by an eyewitness has been, and indeed continues to be, a prominent factor in causing such miscarriages. For example, eyewitness misidentification featured in 235 (72%) of the first 325 exonerations secured by The Innocence Project (Innocence Project, 2016).

Box 2: The Ronald Cotton Case

The wrongful conviction of Ronald Cotton is one of the cases in which The Innocence Project secured an exoneration and that received a great deal of attention in the media, in part because of the willingness of those involved (the falsely accused, the eyewitness and law enforcement personnel) to talk openly about the case (e.g. the BBC series, 'Eyewitness' - Pike & Fletcher-Hill, 2010).

In July 1984 Jennifer Thompson-Cannino (a 22 year old student) was sexually assaulted by a man who broke into her apartment. She stated later that she studied her assailant so that she would later be able to help the police catch him. In January 1985, Ronald Cotton was convicted of rape and burglary, and in a second trial two years later (which added additional rape and burglary

charges) he was sentenced to life in prison plus fifty-four years. The conviction was on the basis of a flashlight found in his home that resembled the one used by the assailant, the fact that the rubber on his shoes was consistent with rubber traces found at the crime scene and two identifications made by Thompson-Cannino; one in a photo lineup and a later one in a live lineup. She was 100% confident that she was identifying the perpetrator.

Figure ?. Image of Ronald Cotton and Jennifer Thompson-Cannino

In July 1995, after serving more than 10 years in prison, Cotton was released following the results of DNA analysis which not only showed physical evidence from the crime scene was not his, but that it was a match for a convict named Bobby Poole, who had previously confessed to a fellow inmate. The Ronald Cotton case has several components that occur again and again in exonerations, namely that the key evidence comes from an eyewitness who was very confident in their decision and that the other evidence available was not sufficient to establish the identity of the perpetrator. It therefore serves as an example of just how inaccurate eyewitness identification evidence can be and how misidentifications can lead to major miscarriages of justice.

Although many of the original investigations that have featured in prominent miscarriages of justice happened decades ago and pre-date many advances in criminal investigation and relevant legislation, contemporary practice still includes many of the components that research has shown can lead to misidentifications, and moreover the number of lineups being conducted has increased greatly over the last 30-40 years. Valentine (2009) estimated that whilst about 2000 identification procedures were held per year in the UK in 1976, the figure is closer to 100,000 line-ups in the modern era. Although some improvements to practice have been made, the number of misidentifications made will still be proportionate to the number of procedures that are conducted (Valentine, 2009). This means that even if the ratio of legitimate identifications to misidentifications has increased (and it is certainly debateable whether it has), the overall number of misidentifications may well have gone up, simply because more lineups are being conducted. The potential for miscarriages of justice occurring because of identification evidence is, therefore, still an issue of vital importance today.

Research, practice and costs

It should be clear that there is evidence of significant problems with identification evidence and a great deal of research has been devoted to improving its accuracy. As well as because it addresses an issue of significance to society, eyewitness identification has also proven to be an attractive research topic as it allows the application of knowledge gained from more theoretical studies of face recognition and memory, and is based on procedures that are relatively straightforward to replicate in a laboratory setting. As a result, a review of approximately three decades of policing psychology research conducted by Snook et al. (2009), found that of articles focusing on operational policing issues, 27% were about eyewitness memory and 16% lineups; compared to 13% on interviewing and 10% on profiling.

So, have investigative practices now changed in light of this research? Unfortunately the answer to this question is that although some changes have been implemented, the methods used to obtain identification evidence in police investigations are still fundamentally different to those that would

be recommended on the basis of research results. For example, recommendations have been made by academic and research organisations in many countries, perhaps most notably by the American Psychology/Law Society (AP/LS), which suggested four rules regarding: who conducts the lineup (primarily the use of 'double blind' procedures in which the person conducting the lineup should not be aware of the identity of the suspect); the instructions given to the eyewitness prior to viewing the lineup (including explicitly informing them that the perpetrator may not be present); the structure of the lineup (to ensure that the suspect does not stand out); and that confidence statements should be taken at the time of the identification (Wells et al., 1998). The subcommittee of the AP/LS responsible for drafting the recommendations also recognised two additional recommendations: that the members/images in a lineup be presented sequentially rather than simultaneously; and that the lineup procedure be recorded on video. These two were not included as 'core' recommendations due to a variety of issues, including potential additional costs, that they may require significant deviation from current practice and that their utility may not be self-evident to the legal system.

More recently the US National Research Council (2014) endorsed the scientific evidence underpinning these recommendations, going on to establish recommendations for best practice for the law enforcement community and to strengthen the value of eyewitness evidence in court. With regards to investigative procedures, best practice was seen to be: training all officers in eyewitness identification; implementing double-blind procedures; the use of standardised witness instructions (including that the perpetrator may or may not be present); documenting witness confidence judgements; and videotaping the identification process.

In the US, at the time of writing, five states (New Jersey, Wisconsin, North Carolina, Ohio and West Virginia) and a number of local jurisdictions have adapted relevant legislation or guidelines concerning eyewitness identification (Clark, 2012). In addition, the double-blind, sequential procedure was trialled successfully in the two Minnesota counties of Hennepin and Ramsey in 2006 (Gaertner & Harrington, 2009), with Ramsey County concluding that, "...it is confident that this change represents an improvement over prior practice. The Ramsey County experience unequivocally demonstrates that this model can work in a law enforcement setting." (Gaertner & Harrington, 2009, http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display&article_id=1776&issue_id=42009)

However, despite some significant inroads, to date it is still the case that procedures for obtaining identification evidence do not adhere to all of the above recommendations. Importantly, the use of double-blind procedures remains very scarcely implemented indeed. We will explore the research behind this, and the other recommendations later, and instead now consider some of the reasons why practice does not better reflect evidence from research.

The problems of implementing the results of research and of evidence-based practice are well documented generally (Mullen & Streiner, 2004) and within specific domains such as the criminal justice system (Sherman, 2013). Rather than review the more generic problems, here we will concentrate on those that are specific to identification evidence; although the broader problems in establishing evidence-based practice (particularly in policing practice) should not be underestimated and almost certainly are a strong influence in the case of identification evidence.

Pike, Havard and Ness (2014) explored potential reasons why the results of relevant research was not influencing eyewitness identification procedures in England and Northern Ireland by surveying policing personnel who routinely worked with identification evidence. The results showed that 86% of respondents believed that current identification practice either worked well or didn't need much improvement and well over half indicated they had either no, or vague, knowledge about existing research-based recommendations. Critically, the large majority (84%) thought that any changes introduced should attempt to increase positive identifications, with more than half of these respondents believing this should even be at the cost of also increasing misidentifications. There are several possible explanations of this, including that the respondents didn't think that misidentifications presently occurred. However, respondents' mean estimate of the percentage of lineups in which the witness made a positive identification was 40.56%, which is a good match for research estimates based on analysis of real lineup procedures in the UK (Pike, Brace & Kynan, 2002). Moreover, the respondents' mean estimate of the percentage of lineups which feature an innocent suspect (20.76%) was also very similar to estimates made in research, for example about 20% according to Clark & Godfrey (2009).

This means that the policing staff surveyed tended to have a good idea regarding the outcome of lineup procedures and the incidence of misidentifications and *yet still* the majority thought that increasing the number of positive identifications should be the priority. Clearly this suggests that misidentifications were not a concern for these officers, or at least that they were far less of a concern than was obtaining positive identifications. This issue was explored further through focus groups, where it became apparent that staff were driven by quantitative performance measures to do with completing specific tasks which taken together would amount to successful arrests and prosecutions. Thus, the pressure was to obtain positive identifications, with misidentifications often being seen as errors for others to resolve, particularly through subsequent court hearings. This situation is likely to have arisen in part from performance cultures, but also from the adversarial justice system which can cast investigative and prosecutorial teams in the role of finding evidence of guilt, whilst proving innocence is left to the defence - indeed many of the free text responses in the Pike, Havard and Ness survey were officers commenting on the need to constrain the influence of defence lawyers.

The picture that emerges from Pike et al. (2014) is of an eyewitness identification practitioner body that does not think significant changes are needed, is unfamiliar with research recommendations, has a good idea regarding the rates of positive and mis-identifications and believes that any changes should be aimed at increasing positive identifications. Such a picture helps explain why the results of identification research, which often focuses on reducing misidentifications, have not been put into practice more widely.

The sensitivity of policing personnel to a potential drop in the rate of positive identifications has been a component of eyewitness research, and subsequent recommendations, for some time. For example, when outlining the recommendations of the American Psychology/Law Society, Wells et al. (1998) stated, "We are mindful of the problems with making recommendations for which there are significant financial or other costs to the legal system. Accordingly, we think it important that the four recommendations that we have made are largely without financial cost to the justice system... We have taken great care to recommend procedures that do not serve to reduce the changes that the guilty party will be identified." (Wells et al., 1998, p.28-9). Researchers have also been careful to

point out that a misidentification not only results in an innocent person potentially being sent to prison, but also means the guilty party remains free *and* that the state incurs the cost of an expensive investigation and trial (Clark et al., 2015).

More recently there has been debate about whether the AP/LS recommendations really do involve 'no cost', which has concentrated on the negative impact they may have on positive identifications (see Clark, 2012). Regardless of the extent of any drop in positive identifications, there is a significant difference between research demonstrating how to reduce the rate of misidentifications whilst (arguably) having a negligible affect on positive identifications, and the development of techniques that actively improve positive identifications; which is what many practitioners seem to be interested in.

Likewise, there is a difference between recommendations that will not cost the criminal justice system more money, and the development of techniques that could actually *save* money. In many countries and organisations there tends to be an emphasis on procedural changes that reduce expenditure, a situation that has been significantly augmented by the implementation of austerity measures in public sectors around the world. This can mean that proposed changes that do not cut expenditure, even if they do not actually increase it either, may not be seen as a priority by practitioner organisations. In terms of identification evidence, this could mean placing more emphasis on calculating the costs of proceeding with investigations and trials that later fail to gain a conviction because of misidentifications, or of developing new recommendations or techniques that are also cheaper to administer. For example, automating identification processes using computers could help to standardise the characteristics of the images, the construction of the lineup and the instructions given to the eyewitness, and also provide a means of double-blind testing whilst also potentially reducing expenditure.

A similar approach was used in England and Wales in the development of video identification parade systems, which research showed to be fairer (i.e. more of the foils were a reasonable match to the witness' description of the perpetrator) than existing 'live' parades (Valentine & Heaton, 1999) and also much cheaper to administer as they did not require such extensive facilities and personnel (Pike, Brace & Kynan, 2002). Pike et al. (2002) also drew attention to an aspect of identification evidence that is often overlooked, which is that many lineups do not produce identification evidence because the witness, suspect or required legal personnel do not turn-up. Such cancellations represent considerable expenditure for no outcome, an element that makes video (and photo) parades attractive as they do not require all parties to be present at the same time, making them less likely to be cancelled. In addition, if a new procedure or technique can be shown to reduce cancelled procedures, then it can also be used to show that it is likely to lead to an overall increase in the number, if not rate, of positive identifications. These economic considerations and potential improvements to positive identifications proved to be vital to changing practice in England and Wales in 2003 to a system based on video identification parades rather than live lineups, despite the original research being aimed at making fairer lineups that would result in fewer misidentifications.

The focus group study conducted by Pike, Havard & Ness (2014) revealed another barrier, as policing staff reported feeling unable to make any changes to practice as national legislation and guidelines dictated what must happen. Thus one downside of being successful in gaining guidelines and legislation, even if they offer a significant short term fix of existing problems, is that they can make

any future changes to practice much harder to achieve. It also serves as a reminder for researchers that neither the criminal justice system nor the police are a single entity and that change is hard to secure by lobbying one particular element.

One possibility for communicating the dangers of misidentifications might be to adapt existing frameworks for evaluating harm, such as the multicriteria decision analysis procedure (e.g. Nutt, King and Phillips, 2010), which would allow the quantification of misidentifications in a broader context of the cost to individuals, families and to society in general. Such frameworks are useful in providing an objective and broad picture of the harm caused by various phenomena, for example that smoking cigarettes is particularly harmful not just because of the impact on individual health, but because half of all the world's fires are caused by cigarettes (Nutt, 2015), and could potentially be a persuasive approach to securing relevant changes to policies governing identification evidence by estimating the true harm and cost of misidentifications.

Constructing and conducting lineups

As was stated previously, lineups consisting of just a single person tend to lead to a high rate of misidentifications (Lindsay et al., 1997). One problem with such procedures is that it is impossible for a witness to make a selection that is incorrect (i.e. not the suspect). The same would be true of any size of lineup where all the members were also suspects, and research has shown that single suspect lineups lead to significantly fewer misidentifications than do all-suspect procedures (Wells & Turtle, 1986). Wells, Cutler & Hasel (2009) note an extreme example of this in which the witness in the 2006 Duke University rape case, involving multiple suspects from the lacrosse team, was shown a lineup consisting of the entire team of 46 players. In this case, making *any* selection would mean picking a suspect as at that point all 46 players were under suspicion and no foils had been included. As the witness could not make an incorrect selection as would be the case if foils had been used, the lineup was not diagnostic of their ability to identify the perpetrator. As Steblay (2015) points out, throwing a dart at the lineup would also have yielded a suspect hit.

It follows that having only a single suspect and increasing the size of the lineup by adding foils will also decrease the probability that the witness will select the suspect by chance alone. Selecting a foil is counted by the police as a 'negative identification', so there is no risk of a true misidentification occurring unless the witness selects an innocent suspect. However, it is obvious that simply adding any foils is insufficient, but instead the foils must resemble the suspect; a point that has led researchers to distinguish between 'actual' and 'functional' lineup size (Wells, Leippe & Ostrom, 1979; Valentine & Heaton, 1999). To reduce the chance that a lineup will result in a misidentification, it is important that it has high functional size (Lindsay & Wells, 1980) as this will reduce the chances of a witness selecting the suspect for any other reason than that they recognise them as the person seen committing the crime. To ensure the lineup has high functional size, foils need to be selected that match the description of the perpetrator that was provided by the witness (Wells et al., 1998). Selecting foils that directly resemble the suspect may appear to be a more logical approach, but this can rely too heavily on the subjective judgement of the lineup administrator and could also lead to a lineup where the members are *too* similar to one another and make it very difficult for the witness to make a positive identification (Tredoux, 2002). However, match to description lineups may be problematic if the witness provides an inaccurate or even vague

description that allows the selection of foils that do not particularly resemble the suspect (Meissner, Sporer & Schooler, 2007), thus requiring some caution be exercised in their use.

One aspect of lineups that has received a great deal of attention from researchers is whether the members of the parade should be presented simultaneously or sequentially one at a time (Brewer & Palmer, 2010). It has been suggested that seeing all the members of the lineup simultaneously allows a witness to compare the faces in the lineup directly and arrive at a 'relative judgement' about which is most like their memory of the perpetrator (Wells, 1984). The problem with such decisions is that the witness may be drawn into selecting the most similar face even if it is not that of the perpetrator. By presenting the lineup members sequentially, witnesses are forced to make an absolute judgement about whether each face is that of the perpetrator, which reduces the likelihood of their being able to simply choose the best match (Wells, 1984). Alternatively, Palmer & Brewer (2012) have argued that rather than the use of absolute judgements *per se*, the reduction in misidentifications when using a sequential lineup is a result of participants adopting a more conservative decision process in which they are less likely to make a selection at all.

Whatever the cause may be, a great deal of research has shown that sequential presentation reduces the incidence of misidentifications when the lineup contains an innocent suspect. This includes meta-analyses conducted in 2001 (Stebly et al., 2001) and in 2011 (Stebly, Dysart & Wells, 2011, which analysed data from 13,143 participant witnesses), both of which showed that sequential lineups resulted in 22% fewer errors than their simultaneous counterparts. However, more recently research employing a different type of statistical analysis (receiver operating characteristic analysis) has suggested that simultaneous lineups may allow innocent and guilty suspects to be discriminated more reliably than when using sequential lineups (e.g. Seale-Carlisle and Mickes, 2016).

There is also debate regarding whether sequential parades lead to a significant reduction in the rate of correct identifications. In the two meta-analyses the sequential lineups produced fewer correct identifications than did the simultaneous lineups. The current consensus seems to be that rather than have no impact on positive identifications in target present lineups, as was claimed in the AP/LS recommendations (Wells et al., 1998), sequential presentation *does* result in a reduction in positive identifications compared to simultaneously presented lineups, though this is smaller than the reduction in misidentifications that occur in target absent lineups (Lindsay et al., 2009). Clark (2012) suggests that the reductions are more likely to be comparable and points out the problems of presenting 'no cost' recommendations to practitioners, who may hold differing views regarding the relative importance of correct identifications and misidentifications than do researchers. The survey of identification police staff conducted by Pike, Havard and Ness (2014) provides evidence that practitioners are unlikely to want to adopt a technique that results in *any* reduction in identifications, suggesting that sequential lineups could be a hard-sell to many law enforcement officers.

Another element that can make truly sequential lineups unattractive to the police is the notion that the procedure might end once the witness has made an identification. This is because if the witness selects a foil before seeing the suspect then they will not get to see them, and the witness not viewing the suspect seems to run contradictory to the demands of the investigation. It is common in the UK to use video parades, which use a sequential presentation. However, the Codes of Practice of the Police and Criminal Evidence Act (PACE), which govern identification evidence in England and

Wales, state that "The witness must also be told they should not make any decision about whether the person they saw is on the identification parade until they have looked at each member at least twice." (PACE, 1984, Code D, Annex C, Section 16). Although this means that the witness will definitely see the suspect (at least twice), it also affects the witness's decision criteria and ability to make comparisons between lineup members.

The instructions given to the witness prior to the lineup are also critical, and research has shown that simply informing the witness that the perpetrator 'may or may not be present' can dramatically reduce the chance of a misidentification being made. For example, using a meta-analysis of sixteen experimental studies, Steblay (2013) demonstrated that including the 'may or may not' instruction resulted in a significant reduction of identification errors from 70% to 43% in target-absent lineups. The importance of the 'may or may not be present' instruction was further demonstrated by Rose, Bull and Vrij (2005), who found that participants who did not remember this instruction when making an identification were less accurate than those who did, and that older participants were more likely to forget the instruction than were younger participants.

In England and Wales, the PACE Codes of Conduct state that the witness be instructed that "... the person they saw on a specified earlier occasion may, or may not, be present and if they cannot make a positive identification, they should say so" (PACE, 1984). It is likely that this has helped reduce the incidence of mistaken identification compared to countries that do not have a similar guideline.

It is also important that the person conducting the lineup refrains from giving the witness any additional instructions or cues, whether verbal or non-verbal, as these could provide the witness with clues as to the identity of the suspect. It is hard to underestimate the impact that even inadvertent or unconscious verbal and non-verbal cues can have and medical researchers have found that these can even result in a change in health outcome (De Craen et al, 1999). As a result it is necessary to use a 'double-blind' procedure in medical trials in which neither the patient nor the person administering the treatment knows whether the actual treatment or a placebo is being used (Hulley et al., 2013). Research has shown that similar biasing effects can occur in lineups (e.g. Faselow & Buckhout, 1976) and researchers therefore advocate that lineups should be administered using a double-blind procedure, such that neither the witness nor person administering the lineup knows the location of the suspect (Wells et al., 1998). Not only can using a double-blind procedure guard against the witness making a selection because of cues from an officer, but it can also help ensure that witnesses do not inflate the confidence expressed in their decision when given feedback after the lineup, even when the feedback was not specifically about the identification made (Dysart, Lawson & Rainey, 2012.).

One of the recommendations from both the AP/LS (Wells et al., 1998) and the US National Research Council (2014) is that the confidence of the eyewitness in their decision be taken immediately following the lineup. This is based on research that has found that if confidence can be recorded *immediately* after identification is made and before the witness is provided with any feedback on their decision, then it can be a useful indicator as long as the witness selected someone from the lineup (Sauerland & Sporer, 2009). Research has shown that although not *always* correct, very confident eyewitnesses are associated with relatively high degrees of accuracy whilst unconfident witnesses are not (Brewer & Palmer, 2010). In other words, a witness recoding a very high degree of confidence immediately after selecting the suspect from the lineup can be a good indicator to the

police that the suspect is worth investigating further, whilst an unconfident decision suggests that they may be wise to investigate other suspects.

Problems faced by eyewitnesses

There are many hurdles that stand in the way of a witness attempting to provide an accurate identification. Moreover, the high error rates associated with eyewitness identification contradict our usual experience of being able to recognise faces very accurately, over long periods of time and despite significant changes in appearance. The reason for this is that our everyday experience is of recognising faces that are *familiar* (e.g. family and friends), a task that we perform very well. However, we perform far less accurately when a task requires us to recognise an *unfamiliar* face (Hancock, Bruce & Burton, 2000), as is the case when providing eyewitness identification evidence.

Other factors that have been shown to negatively impact identification evidence include the presence of a weapon, which can have a detrimental effect on eyewitness memory of the event, and a small to moderately negative effect on identification accuracy (Fawcett et al., 2013). The practical elements of how the perpetrator was viewed are also important. Both distance from the perpetrator and the ambient illumination can have a profound effect on identification accuracy (Wagenaar & Van Der Schrier, 1996), and Memon, Hope & Bull (2003) showed that witnesses who saw the perpetrator for a longer duration tended to make more accurate identifications than was the case for a shorter duration (45s and 12s in this study).

The accuracy of identification evidence can also be affected by information seen or heard by the witness between witnessing the crime and attending the lineup procedure. This can include information gained from talking to another witness, referred to as the co-witnessing effect by researchers. A survey of officers and witnesses conducted by Paterson (2010) revealed that discussion amongst witnesses is a common phenomenon, but if witnesses share their memory of what happened then they are also very likely to alter their own memory in line with what others say, even to the extent of remembering aspects of the event that they didn't see (Paterson, 2006). Further, Levett (2013) found that participant-witnesses who received information that a co-witness had made a selection from a lineup were more likely to make a selection themselves.

Alternatively, witnesses can sometimes be shown information as part of the investigation. If the police need to generate potential suspects, this can include showing the witness an album of mugshots, which research has demonstrated can then have a negative impact on identification accuracy when the same witness is shown a lineup. A meta-analysis conducted by Deffenbacher, Bornstein & Penrod (2006) showed that exposure to mugshots decreased accuracy at a subsequent lineup both in terms of decreasing correct identifications (and correct rejections) and resulted in an even bigger effect in terms of increasing the number of misidentifications made. In the case where a witness selects a suspect in a lineup because they had seen them previously in a mug-shot album, their memory of the mug-shot face has been *transferred* into their memory of the actual perpetrator. As this is not done intentionally and the witness is unaware that it has happened, it is referred to as the 'unconscious transference' effect (Read et al., 1990). Such transference can also occur for innocent bystanders seen at the crime scene, and even for an innocent person seen a week later (Read et al., 1990). There also appears to be a 'commitment effect', whereby most witnesses who select

someone from a mug shot will also pick that person again if they see them in the lineup, even though they were not the perpetrator (Dysart, et al., 2001).

An alternative method of generating potential suspects is for the witness to generate a likeness of the perpetrator. This can be done through an artist's impression or by using specialist software that creates a facial composite image (e.g. E-FIT, EFIT-V, EvoFIT, FACES or Photofit). Research has also explored whether facial composites can reduce lineup identification accuracy in the same way that mug shots do, though results have been far more mixed, with some studies reporting a detrimental effect on lineup accuracy (e.g. Topp-Manriquez, McQuiston & Malpass, 2014), some no effect (e.g. Davis, Thorniley, Gibson & Solomon, 2015) and others that creating a composite can actually improve the accuracy of later identifications (e.g. Davis, Gibson & Solomon, 2014).

Differences between the witness and perpetrator can also lead to problems with regards to identification accuracy. One of the most significant, and worrying given the likely relative ethnic make-up of typical suspects and witnesses in some countries, is 'own-race bias', whereby witnesses tend to be better at identifying perpetrators of their own ethnicities. In a meta-analytic review of own-race bias, Meissner and Brigham (2001) found a 'mirror effect' in which other-race faces yielded a higher proportion of misidentifications and a lower rate of positive identifications than did own-race faces. As well as identification accuracy, ethnicity can also affect the construction of lineups, as both black and white lineup administrators tend to adopt looser criterion, resulting in a tendency to see faces as being more similar to one another, when constructing lineups for a suspect of a different race to their own (Brigham & Ready, 1985).

In a similar fashion to ethnicity, own-age bias can also affect the accuracy of identification evidence, although research on this topic does not produce such clear-cut results as that on own-race bias. For example, Havard et al. (2012) found that children aged 6-8 were more accurate at correctly recognising a perpetrator of their own age group from a target-present lineup, but that adults showed a reversed own-age bias and were actually more accurate when the target was a child than when they were an adult. As well as own-age bias creating problems for obtaining eyewitness identification from children, there are many other factors to bear in mind, which will be explored in the next section.

Children as eyewitnesses

In many jurisdictions around the world witnesses under 18 years old are treated very differently from adults. For example, in the UK they are classified as 'vulnerable' (see Chapter 5) and the use of specialist interviewing procedures is advocated. Indeed, younger children may be excluded from an investigation altogether because of a perception that the evidence they provide is far less reliable than that of an adult. There are several reasons for this: that a child's cognitive processes are not yet fully developed and so may be more prone to error; that a child may not understand complex situations involving 'right' and 'wrong' and so may misinterpret acts and scenarios; and that children tend to be far more susceptible to suggestion than are adults. In addition, there may be the perception that they will make bad witnesses when in court. Of course, the cognition, understanding and suggestibility of adults is not assessed before they give evidence, and as you read in the previous

two chapters, a common theme in the research in this area is to find great variability amongst both children and adults in terms of the accuracy of the testimony they provide.

In terms of identification evidence, and as with adult witnesses, the key question is whether a child can select a person from an identification procedure because they saw that person previously committing the crime. This question can usefully be divided into two elements: are the face recognition abilities of the child sufficiently developed that they can accurately recognise a face seen at some point in the past; and are they able to make a decision based solely on their memory of the perpetrator's appearance rather than what they might perceive to be the answer wanted by the investigators.

As with most cognitive processes, there is a developmental trend such that the speed, accuracy and capacity to recognise a face increases until the mid-teens. It has been suggested that as well as a quantitative improvement, there is also a qualitative change such that younger children tend to encode faces in a piecemeal fashion (e.g. feature by feature) whilst older children and adults encode faces more holistically using the configuration of the features (Diamond & Carey, 1986). One pertinent conclusion to arise from the more theoretical study of face recognition in children is that it is vital to use testing techniques that have been appropriately designed for use with children, and that simply using the same technique used with adults is likely to lead to poorer accuracy (Brace et al., 2001). Two key components of developing child-oriented techniques are to explain the task in a way that the child will understand, and to bear in mind that children tend to be suggestible thus any questions need to be posed very carefully.

Child-oriented research techniques have provided valuable theoretical knowledge (e.g. Karmiloff-Smith, 2004) and have also been applied successfully in forensic settings. For example, Paine, Pike, Brace and Westcott (2008) developed a set of visual cues that are used to obtain information about facial appearance rather than ask verbal questions. The cues are used in conjunction with the E-FIT facial composite system, and have the advantage both that they help the child provide more accurate information whilst also avoiding potentially leading questions.

Figure ?. An example of the visual cues used by Paine et al. (2008).

Although focusing on facial composite construction rather than identification evidence per se, Paine et al. (2008) draw attention to the fact that younger children can feel obliged to provide an answer when asked a question and may find it difficult to tell an adult, authority figure that they 'don't know' or 'are uncertain'. When being interviewed more generally, this tendency can be minimised by using appropriate questioning techniques that avoid placing the child in a position where they feel compelled to provide an answer. In the case of identifying someone from a lineup, however, the witness has to provide a specific answer. To compensate for this, Paine et al. included a '?' in their visual cues (see Figure ?), so that the children could indicate that they didn't know or were uncertain of the appearance of a particular facial feature in the same way that they would indicate what they thought that feature looked like - in this instance by pointing to the appropriate image. The idea behind this was to avoid the child thinking that a 'don't know' response was undesirable, incorrect or not wanted by the researcher.

Figure ?. The mystery man silhouette developed by Havard and Memon (2012)

Using a similar technique to Paine et al. (2008), Havard and Memon (2012) created a black silhouette of a face covered by a white question mark that could be placed in a video lineup to allow children to indicate they could not make an identification (see Figure ?). Use of this 'mystery man' procedure resulted in children making fewer misidentifications in target-absent lineups compared to lineups in which they had to verbally indicate that they couldn't make an identification.

Conclusion

Hopefully this chapter has made clear that the accuracy of eyewitness identification evidence is an important issue, and that it is likely that current ID procedures could be improved further to reduce misidentifications. It should also be apparent that a great deal of research has been conducted into identification evidence and that as a result we now know a great deal about the causes of misidentifications and also have some good ideas about how to reduce the number that occur. Unfortunately, it is unlikely that misidentifications can be eradicated entirely as long as human witnesses are relied upon to produce identification evidence.

Although there are some good examples of researchers and practitioners working together to improve eyewitness identification procedures, there is also still a very long way to go. If significant changes to practice are to be made, it is critical that researchers and practitioners find effective methods of communicating and collaborating. The authors (one researcher and one practitioner) would suggest that this should not be through a model of researchers informing practitioners about research results, but instead that a collaborative model be adopted whereby practitioners can input throughout the research process, including in the generation of research questions.

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