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## Eyewitness Identification

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EYEWITNESS IDENTIFICATION

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Honors Thesis

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## **Abstract**

Eyewitness identification often plays a crucial role in the criminal justice system. It can be used to make an arrest, both exonerate and convict suspects, fuel police interrogation, and influence a plea bargaining decision. In the meantime, eyewitness misidentification has contributed to approximately 69% of the wrongful convictions, making it the leading factor in wrongful convictions nationwide. Hence, the central question that will be explored in this thesis is: Why eyewitness testimony is so powerful despite it is prone to error? To answer this question, this thesis will examine the role of eyewitness identification played in the criminal justice system from both sociological and psychological perspectives. Specifically, this thesis will first provide a brief overview of the existing methods of eyewitness identification and then present some basic psychological research on the reliability of human memory from three perspectives which are (a) the conformity of human memory, (b) the other-race effect (ORE) in human memory, and (c) the own-gender bias effect in human memory. Next, the role of race and police officers played in eyewitness identification will be explored. Lastly, this thesis will provide some recommendations on improving the future eyewitness identification procedures in order to strengthen the value of eyewitness testimony in the courtroom.

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## 1. General Introduction

Eyewitness identification is an important element of criminal proceedings in the United States. It not only can be used to arrest a suspect, but it also can lead to both the exoneration and conviction of a suspect. Furthermore, it often serves to fuel the police interrogations and being used as a part of plea bargaining to make the defendant enters a guilty or no contest plea. Generally, suspects of the crime are identified by the eyewitness through show-up, live lineup, and/or photo array. The positive identification made by the eyewitness often used to influence plea bargaining decisions in that prosecutors tend to offer more punitive charges when they are holding eyewitness testimony as one of the prosecuting evidence (Kutateladze et al., 2015). Relatedly, eyewitness testimony often plays a determinative role in convincing the juries about a person's guilt, especially when the eyewitness appears to be confident during the trial. However, this does not imply that eyewitness identification is accurate or reliable. The National Research Council et al. (2014) found that almost without exception, eyewitnesses generally expressed complete confidence that they had chosen the right perpetrator. Despite the high confidence eyewitnesses tend to possess when testifying, at least one eyewitness misidentification happened in almost three-quarters of DNA exonerations. In *United States v. Wade*, 388 U.S. 218, (1967), the Supreme Court of the United States recognized the problem of reliability in eyewitness identification, stating that "The vagaries of eyewitness identification are well-known; the annals of criminal law are rife with instances of mistaken identification." Therefore, it is critical to study eyewitness identification and develop lineup procedures that can help to maximize the accuracy and reliability of eyewitness identification.

Since 1989 in which the first DNA exoneration took place, there have been 375 people to date were also exonerated later by post-conviction DNA evidence in the United States (Innocence Project, 2020.). Of these wrongful convictions overturned by DNA evidence, eyewitness misidentification has contributed approximately 69%, making it the leading factor in wrongful convictions nationwide. And of those eyewitness misidentification cases, 34% involved a misidentification from a live lineup, 52% involved a misidentification from a photo array, 7% involved a misidentification from a mug book (a file

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of criminals' pictures), 16% involved a misidentification from a show-up procedure, and 54% involved an in-court misidentification (Innocence Project, 2020.). Looking at the overall exonerations data which includes non-DNA-based exonerations, 28% (809/2,887) of the wrongful convictions were a result of eyewitness misidentification which is the third leading cause after perjury (61%) and official misconduct (55%) (The National Registry of Exonerations, 2021.). It is also worth noting that sexual assault makes up most of the wrongful convictions (67% or 232/347) caused by eyewitness misidentification (The National Registry of Exonerations, 2021.) because this type of crime usually involves evidence that has some trace of fluid or tissues containing the perpetrator's DNA (Harris, 2012).

Despite the concern that eyewitness testimony might not be a reliable form of evidence, yet eyewitness identification testimony may be admitted at a criminal trial as Section 3502 of the Federal Rules of Crimes and Criminal Procedure (18 U.S.C. 3502) provides that "The testimony of a witness that he saw the accused commit or participate in the commission of the crime for which the accused is being tried shall be admissible in evidence in a criminal prosecution in any trial court ordained and established under Article III of the Constitution of the United States" (Legal Information Institute, 1968). This indicates that eyewitness testimony can be constitutionally used as a form of evidence to find a person guilty of a crime even though eyewitness testimony consistently ranks among the least reliable types of evidence. The central question that will be explored in this thesis is: Does the eyewitness identification being convincing the same as being accurate or reliable?

## **1.1 Why study eyewitness identification?**

The interest in eyewitness identification is definitely not something brand new, and abundant research have been carried out to study topics related to eyewitness identification, including human memory (e.g., Carlucci et al., 2011), memory biases such as other-race effect and own-gender bias effect (e.g., Brigham & Ready, 1985; Rehnman, 2013), confidence-accuracy relationship (e.g., Whittington et al., 2019), the effect of race on eyewitness identification accuracy (e.g., Edlund & Skowronski, 2008; Dodson and Dobolyi, 2015), etc. Nonetheless, most of the existing research conducted on eyewitness

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identification are psychological studies. Examining the role of eyewitness identification played in the criminal justice system from a sociological perspective is therefore interesting and beneficial both from a theoretical and applied perspective. Accordingly, this thesis aims to combine the findings from psychological studies and sociological studies on eyewitness identification so that important information can be added to both fields.

## 1.2 A brief overview of the present thesis

Eyewitness testimony requires the eyewitness to recall the dramatic event that he or she has witnessed and then identify the perpetrator. Nonetheless, human memory can be malleable and subjected to alteration easily. The assumption that human memory is much like a video camera that allows a person to retrieve information accurately from what he has deposited is completely misleading. Psychological research on memory recall and formation (e.g., Carlucci et al., 2011; Monds et al., 2019; Yaros et al., 2019) have consistently proven that memories can be manipulated and subjected to the risk of modification. In spite of that, eyewitness testimony still acts as one of the most direct links one can imagine between the defendant and the crime in today's criminal proceedings (Harris, 2012).

Eyewitnesses often say, "I saw it happened with my own eyes; It was him; I saw him did it; It was him committed the crime." But did they really see it? Harris (2012) raised an interesting point in *Failed Evidence: Why Law Enforcement Resists Science* that "even a fingerprint discovered in an incriminating place does not have this power", indicating that even the fingerprint evidence found on a murder weapon are unable to tell the court like the eyewitnesses that when the crime took place, where did it happen, who did it, and how he did it. At most, the fingerprint evidence helps to identify a person's presence at a crime scene (Forensic Equity, n.d.)<sup>1</sup> as it says, "a person with this fingerprint handled this item at some point" (Harris, 2012) despite the fact that fingerprint analysis can achieve a minimum of

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<sup>1</sup> Retrieved from <https://www.forensicequity.com/fingerprints>, accessed on September 01, 2021.

98.6 accuracy on single-finger tests and up to 99.9 accuracy for tests involving four or more fingers (Thakkar, 2021).

Eyewitness testimony can be a powerfully and uniquely persuasive tool as studies (e.g., Wells et al., 2006) have shown that eyewitnesses with no obvious motive to color the truth almost always successfully convince the jurors (Harris, 2012). Accusing and convicting a person solely based on eyewitness testimony can be very risky, especially when the offense the person charged with typically do not produce DNA-laden material to test. Therefore, this thesis aims to gain a better understanding of the role played by eyewitness identification in the criminal justice system by exploring the following research questions:

- 1) *What are the variations of how eyewitnesses are defined under different contexts?*
- 2) *What are the eyewitness identification methods currently available to the police officers?*
- 3) *How reliable are human memories in recalling an event?*
- 4) *What are the roles of police in manipulating eyewitness testimony?*
- 5) *How to improve the overall accuracy of future eyewitness identification processes?*

## **2. Methodology**

The ultimate goal of this research is to find out new ways to improve the reliability of eyewitness identification procedures which in turn help to reduce the flaws in future lineup procedures and increase the overall accuracy of future eyewitness testimony. To accomplish this goal, a qualitative approach was chosen for this study. Ideally, this study will first utilize secondary data to provide a detailed analysis of the eyewitness identification methods that are currently available to and utilized by the police officers. Next, the pros and cons of each eyewitness identification method are compared and contrasted. Sources of data include scholarly journals and books, newspapers, magazines, United States Supreme Court cases, websites registered by the government and educational institution, academic databases, and policy documents derived from the office of attorney general and local agencies.

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On top of that, this study also aims to explore the reliability of human memory from a psychological perspective. This research will examine the memory conformity effect, the other-race effect, and the own-gender bias effect on the working performance of human memory. Additionally, this study will look into the role of police officers played in shaping the lineup procedure and then analyze the flaws discovered in the police lineup. Similarly, the data will be built on secondary sources including scholarly journals and books, newspapers, magazines, websites registered by the government and educational institutions, academic databases, and policy documents derived from the office of attorney general and local agencies. Taken from all the information that has been collected, this paper will finally suggest new ways to improve the overall accuracy of future eyewitness identification.

### **3. Variations of How Eyewitness are Defined**

The term “eyewitness” has different definitions depending on the context and field of study. The United States Department of Justice (DOJ) classifies witnesses into three broad categories: eyewitness, expert witness, and character witness. The DOJ (2020) recognized an eyewitness as “a person who watched certain events and describes what they saw” while an expert witness is being defined as “a specialist who is educated in a certain area and they testify with respect to their specialty area only”. Examples of the expert witnesses are doctors, psychologists, psychiatrists, and forensic scientists”. In addition to that, the DOJ identified a character witness as “someone who knew the victim, the defendant, or other people involved in the case”. Generally, character witnesses do not witness the event take place, yet they can provide helpful information in criminal prosecution as they know the personality of the defendant or victim, and what type of person the defendant or victim was before as well as after the event take place. Some of the examples of character witnesses are neighbors, friends, family members, relatives, and clergy.

The definition of “eyewitness” can be ambiguous and vague in some scenarios. In some of the criminal cases, the witness may also play the role of victim and even can be the neighbor or family member of the victim at the same time. For example, a child who witnesses the occurrence of domestic

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abuse can also be the direct target of violence in the home (which is also called victim). Based on the above case scenario, a question was raised as to whether the child is being classified as an eyewitness or a character witness? For the purpose of this research, the term “eyewitness” is used throughout the paper and it is defined as someone who has firsthand knowledge of an event from witnessing the event and later present in the court to testify what he or she had seen during the occurrence of the crime. There are several requirements imposed by the Federal Rules of Evidence that an eyewitness must meet in order to be qualified to testify in court. Generally speaking, a qualified eyewitness must have personal knowledge of the matter (The National Court Rules Committee, 2021) and must be competent, sober, and sane at the time of controverted event occurred (West's Encyclopedia of American Law, 2008). Testimony provided by an eyewitness who is intoxicated or insane when the crime took place may be deemed to be inadmissible in court as an evidence despite the person is the only eyewitness present during the time of crime (West's Encyclopedia of American Law, 2008).

Eyewitness is a person who has firsthand knowledge of the criminal event and be able to bear witness to the fact in the courtroom. Importantly, an eyewitness must be competent, sober, and sane when the criminal event took place in order to take the witness stand at a criminal trial.

#### **4. Identifying the Perpetrator**

Today, the most common types of identification procedures are live lineup, photographic array (photo lineup), and field identification (show-up). A live lineup is the live presentation of a group of five to nine individuals before an eyewitness, including the suspect and fillers for the purpose of identifying the perpetrator (State Bar of Michigan, 2015). Meanwhile, a photo array is the showing of photographs to an eyewitness for the purpose of eliminating or identifying the suspect (State Bar of Michigan, 2015). The traditional lineups usually show all the lineup members or the suspects’ photos at once to the eyewitnesses and this method of presentation is called simultaneous lineup. Contrarily, police officers today tend to present the suspects or the suspects’ photos one by one without letting the eyewitness knows

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the exact number of people or photos to be viewed, and this method of presentation is referred as the sequential lineup. The last common type of identification procedure is show-up which refers to the presentation of a live person in the field (crime scene) shortly after the occurrence of a crime in order to confirm or eliminate that individual as a suspect (State Bar of Michigan, 2015). Unlike the live lineup or photographic array, the show-up only presents a single suspect to the eyewitness(es) who is/are usually also the victim(s) of the crime (State Bar of Michigan, 2015). If positive identification is made during the identification procedures, then arrest procedures will be implemented and the account given by the eyewitness (which is also called as “eyewitness testimony”) will then be presented in court as a form of evidence to convict the suspect.

#### **4.1 Show-up**

In 1967, the United States Supreme Court ruled that any unduly suggestive identification procedure is in violation of one’s 5<sup>th</sup> Amendment’s and 14<sup>th</sup> Amendment’s rights to due process<sup>2</sup> (Stovall v. Denno, 388 U.S. 293, 87 S. Ct. 1967, 18 L. Ed. 2d 1199 [1967]). Thus, eyewitness testimony that is obtained in violation of one’s due process rights would be excluded as prosecuting evidence in the courtroom. However, the nature of show-up makes the identification procedure inherently suggestive because the individuals presented to the eyewitness are generally not regarded as innocent by the police officers (Law Library - American Law and Legal Information, n.d.)<sup>3</sup>. This is because police officers must find “reasonable suspicion” that the individual has committed a crime before detaining him or her for the purpose of subjecting that person to show-up. In spite of that, show-up can be constitutionally proper if the procedure adheres to the following 2 simple rules: (a) conducted immediately or shortly after the criminal event took place; and (b) conducted near the crime scene (Law Library - American Law and Legal Information, n.d.)<sup>4</sup>.

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<sup>2</sup> 5<sup>th</sup> Amendment to the United States Constitution reads that “No person... shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law...” and this right is “incorporated” and applicable to all states through the 14<sup>th</sup> Amendment.

<sup>3</sup> Retrieved from <https://law.jrank.org/pages/10276/Show-Up.html>, accessed on September 07, 2021.

<sup>4</sup> *Id.*

Furthermore, there are a few basic guidelines that a show-up identification should follow in order to reduce potential bias (Indiana University Police Department, 2020):

- (a) Document the eyewitness's description of the perpetrator before administering the lineup;
- (b) Transport the suspect to the scene of the crime whenever it is possible rather than bring the suspect to the eyewitness, with one exception that when the sole eyewitness to the crime is bedridden or at death's door;
- (c) Alert the eyewitness that the individual that will be presented to him or her may or may not be the real perpetrator;
- (d) The same suspect should not be presented to be the same eyewitness more than once; and
- (e) Document the eyewitness' level of confidence after making a decision.

Above all, the suspect should not be handcuffed, physically restrained, or put in the back of the squad car when being presented to the eyewitness because such actions may easily lead to an inference of guilt (Indiana University Police Department, 2020). Nonetheless, show-up is often thought to be the least reliable form of identification and the use of show-up should be avoided whenever is possible in preference for the use of other identification methods.

## **4.2 Live Lineup vs Photo Array**

Live lineup generally involves only one suspect along with a minimum of four fillers in each identification procedure (State Bar of Michigan, 2015). There are three basic rules governing the selection of fillers in a live lineup. First, no one (both suspect and fillers) should stand out or be distinct from other participants during the lineup (State Bar of Michigan, 2015). Second, the fillers should properly resemble the suspect in some important facial attributes or physical characteristics (National Institute of Justice, 2003). Third, the fillers should be an appropriate choice of alternatives so that no one unduly stands out during the lineup (National Institute of Justice, 2003). Furthermore, the fillers normally are not reused when showing a new suspect to the same eyewitness (State Bar of Michigan, 2015).

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On the one hand, a photo array typically involves one suspect along with a minimum of five fillers in each identification procedure (State Bar of Michigan, 2015). There are 4 basic rules governing the selection of fillers in a photo array. First, the appearance of fillers should match the eyewitness's description of the perpetrator in significant features (State Bar of Michigan, 2015). Second, all the photos including both the suspects and fillers should be contemporary, identical in size and background, and consistent in personal features across all photos presented to the eyewitness (State Bar of Michigan, 2015). Third, the photos should be numbered and placed individually in separate folders (State Bar of Michigan, 2015). Fourth, if a single lineup is conducted for multiple eyewitnesses, then the police officers are obligated to renumber the photos for each eyewitness (State Bar of Michigan, 2015). Just like the live lineup, the photos of fillers normally are also not reused when showing a new suspect's photo to the same eyewitness (State Bar of Michigan, 2015).

It is generally believed that a live lineup tends to produce a more accurate identification result because the eyewitness can access a richer array of hints like height, weight, and body posture when trying to assess the match between a lineup participant and his or her memory of the perpetrator (Brewer, 2011). Live lineup not only allows the eyewitness to observe and examine the lineup participants from different angles (Brewer, 2011), but it also allows the eyewitness to match the perpetrator's voice he or she had heard during the occurrence of crime to the suspect. However, live lineups are highly subjected to the risk of bias or improper procedures, especially when the police officers who conducted the lineup know the identity of the suspect. Unconscious police bias may induce suggestive language, suggestive behavior, or even choosing fillers that are inappropriately distinct which may in turn directly or indirectly affect the judgement of the eyewitness perpetrator (Brewer, 2011). In addition to that, organizing a live lineup tend to be time-consuming and this may increase the risk of memory decay or contamination as time goes by. The longer the interval between the occurrence of crime and the lineup identification test, the more likely an eyewitness make a false positive identification because of loss of memory or the alteration of memory caused by other factors (Brewer, 2011).

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In contrast, photo arrays are less likely to be subject to memory decay or alteration and bias identification procedure (Brewer, 2011). Photo arrays could be conducted much quicker after a crime took place in comparison to live lineup, given the large availability of photo databases (Brewer, 2011). When the interval between the occurrence of crime and the lineup identification test is shortened, the likelihood of false positive identification is also reduced (Brewer, 2011). Besides that, the photo array can be computerized which then eliminates the need for a police officer to administer the lineup procedures (Brewer, 2011). The absence of police officers during the identification test could effectively wipe out any verbal or non-verbal cues (Brewer, 2011). Lastly, it is worth noting that the police officer sometimes will use a photo array to pave the way for a live lineup, given the limited time period or the circumstances that require immediate attention.

### **4.3 Sequential Lineup vs Simultaneous Lineup**

Prior to the lineup, the police officers will read the instructions to the eyewitness and then document that the eyewitness understands the instructions given (State Bar of Michigan, 2015). Next, the police officers will either show all the lineup participants or photos of the participants to the eyewitness at once (simultaneous lineup) or present each participant or their photos separately to the eyewitness, with one person or photo replacing another (sequential lineup) (State Bar of Michigan, 2015). The police officers may present the same lineup member or photo more than once at the request of the eyewitness and the eyewitness is allowed to take as much time as needed during the identification process (State Bar of Michigan, 2015). In a sequential lineup, the police officer must present all lineup members or photos of the lineup member despite the eyewitness has identified a previous person or photo as the suspect of the crime (State Bar of Michigan, 2015). If a positive identification is made by the eyewitness, then the police officers are required to immediately record a statement of confidence which is a statement in the eyewitness's own words that states his or her level of certainty in the identification decision (State Bar of Michigan, 2015). Finally, the confidence statement shall be signed by the eyewitness (State Bar of Michigan, 2015).

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The primary difference between simultaneous lineups and sequential lineups is the mental processes from the eyewitness (National Institute of Justice, 2009). Based on the absolute-relative judgment theory (Wells, 1984), Lindsay and Wells (1985) conducted a study to compare the sequential and simultaneous lineup procedures. Their study suggested that simultaneous lineups promote the exercise of “relative judgement” when what the eyewitness does during the identification process is just comparing the lineup members or the photos to each other. Relative judgment is the idea that the eyewitness is choosing the lineup member or photo that most closely resembles and matches his or her memory relative to other lineup members or photos, in spite of the options available to them do not completely fit what they remember from the crime event. Nonetheless, it is important to note that relative judgement does not necessarily hurt the accuracy rate in lineups where the target is present, yet it does lead to a relatively higher false identification rate in lineups where the target is absent (Lindsay & Wells, 1985).

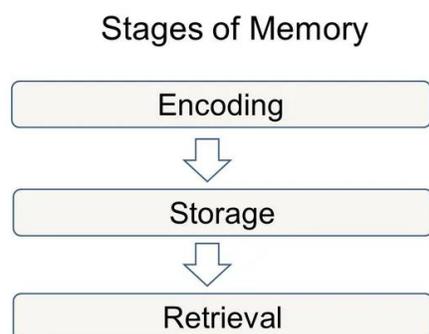
Contrary to the “closest match” judgement in a simultaneous lineup, sequential lineups require the eyewitness to adopt an “absolute judgement” strategy in which the eyewitnesses needs to compare their memory of the offender’s appearance to each lineup member or photo (Lindsay & Wells, 1985). Absolute judgement strategy is more stringent because it encourages eyewitnesses to make a strict judgment against their own memory (Imundo, 2019). Thus, eyewitnesses are less likely to make a positive identification during a sequential lineup. Relatedly, a sequential lineup not only promotes a higher accuracy rate, but it also increases the chance of letting the perpetrator walk free (Imundo, 2019). However, some studies found that the position effect may arise in sequential lineups. Eyewitnesses tend to be more conservative in their judgement early on in the lineup when examining the lineup members or photos in comparison to later in the lineup (Carlson et al., 2008). This is because many eyewitnesses are concerned that they might make a false identification early on in the lineup, and as time goes by, they may become more liberal in their judgment for fear of no positive identification will be made (Carlson et al., 2008). In the meantime, there are studies that also suggested the presence of position effect in

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simultaneous lineups, particularly influenced by whether the lineup member or photos is positioned in the center or towards the edge (Wells et al., 2015).

Today, the most common types of eyewitness identification methods are show-up, live lineup, and photographic array. Show-up typically involves presenting only one suspect to the perpetrator whereas live lineup and photographic array usually present about five to six individuals to the eyewitness for the purpose of either eliminating or identifying the real perpetrator of the crime. In both live lineup and photographic array, the suspect and fillers are either presented one by one (sequential lineup) or all at once (simultaneous lineup). The biggest difference between sequential lineups and simultaneous lineups is the eyewitness's mental process. Sequential lineup promotes the exercise of "relative judgment" while simultaneous lineup requires the adoption of "absolute judgment" strategy. Regardless of what type of identification method is being utilized, it is important to strictly adhere to the basic rules for conducting lineups in order to minimize the possibility of misidentification. Be sure to record a statement of the eyewitness's confidence upon making a positive identification because the confidence statement can be useful in the courtroom later to determine the admissibility of the eyewitness testimony. This thesis will discuss the confidence statement in greater detail later.

## 5. Basic Research on the Reliability of Human Memory



**FIGURE 1** Stages of Human Memory  
Source: McLeod (2013)

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The biggest critique in the eyewitness identification accuracy perhaps is “human memory”. The first step in the processing of memory is the encoding of memory and then followed by the storage of memory (McLeod, 2013). The third step which is also the most critical part in eyewitness identification is the retrieval of memory which is also being widely referred as memory recall (McLeod, 2013).

Psychology classifies memory recall into three broad categories: free recall, cued recall, and serial recall (The Human Memory, 2020). Free recall is the recalling of a list of items in any sequence while cued recall is the recalling of a list of items with the assistance of hints. On the one hand, serial recall is the person recalls items or events in a sequence of their occurrence which is the most common way used by eyewitnesses in retrieving an event they have witnessed.

Recalling a memory is not about just pulling information from what has been previously seen and stored in one’s brain, instead it is a process of creativity in which the relevant but scattered information is being gathered and then assembled into a piece of organized information. Oftentimes, the information one gets from memory recall is not entirely identical to that particular event since the accuracy of recalling a memory depends on a lot of external factors including the context of an event, gender, attention, interference, physical activity, and food consumption (The Human Memory, 2020). Furthermore, one’s persistent beliefs, post-event information, wrongly stated or interpreted statements, and the interference of new memories with old memories might also be the factors that cause the creation of false memories during the process of memory retrieval (The Human Memory, 2020).

## **5.1 The Conformity of Human Memory**

Human memory is often thought to be malleable and easily subject to alteration. To gain a better understanding of whether memory conformity exists in a naturalistic setting, Carlucci et al. conducted a research to examine whether the role a person plays in a social interaction with others is influenced by others’ memory reports for that event. The subjects consisted of 393 participants, and they are being placed into 176 groups with most groups consisting of two people (Carlucci et al., 2011). First, a male confederate would approach a group of people and choose a person (actor) to ask for the time. The term “confederate” is defined as “a member of the research team that the real participants of a study believes is

a fellow participant” (Johnson, 2020). The interaction between the group and the confederate usually lasted about 10 to 15 seconds, depending on how long the actor took to answer the confederate’s question. About a minute later after the confederate left, a research assistant would then approach each group and speak to either the person the confederate spoke to (actor) or the person who witnesses the whole interaction between the confederate and the actor (bystander) first depending on the experiment condition. In the actor condition, the research assistant would first approach the actor and present a target-absent lineup. The research assistant would then ask the actor to: ‘Pick the man that asked for the time out of this lineup’ in front of the other group member (bystander). After the actor made an identification, the research assistant would then turn to the bystander and ask the bystander to make an identification. In the bystander condition, the same procedure was applied but with one exception that the bystander was asked to make an identification first before the actor.

This study found that bystanders were twice as likely to conform to the actor who had the direct engagement with the confederate. This finding shed some light on how memory conformity happens in real-world setting, especially during a real-life eyewitness account. Crimes tend to happen all of a sudden, so many of the eyewitnesses in fact are unable to remember every single detail of the criminal activity. When the confidence level of the eyewitness is low, he or she is prone to believe that others who are also involved in the event (whether it is co-witness or victim) paid more attention than him- or herself during the occurrence of crime and then conform to others’ memories (Gabbert et al., 2007). Due to the reconstructive nature of human memories, police officers have the duty to ask whether if the eyewitness had a conversation with other witnesses or victims of the crime about the event prior to the identification process (Carlucci et al., 2011). This precaution is necessary for helping to minimize the risk of an eyewitness being exposed to misinformation (Carlucci et al., 2011).

In another study, Monds et al. randomly placed 130 participants into 65 groups with two subjects in each group. First, the subjects were asked to complete a visual memory test and then they would receive a false feedback on their performance. Within each pair, the researchers would indicate the memory ability of one participant was relatively stronger as compared to the other members in the group.

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It was expected that subjects who were told that their memory was poorer in comparison to other members of their pair would be more likely to conform to their partner. In contrast, subjects who were told that their memory was better in comparison to other member of their pair would be less likely to conform to their partner.

The data collected from the study showed that the memory conformity manipulation was successful. On top of that, this research also indicated that false feedback about one's visual memory performance does have a significant influence on the person's memory for the event stimulus. Subjects who received negative false feedback had a greater sensitivity to misled propositions and are more likely to perceive the partner's memory as reliable. The research findings highlight the risk of memory conformity in eyewitness identification and further underline the need of judicial processes to consider the influences of general cues to an eyewitness, including discussion with other co-witness about the event prior to lineup, media coverage, and instructions given by the police officers during the process of lineup.

## **5.2 The Other-Race Effect (ORE) in Human Memory**

On a summer night of 1984, Jennifer Thompson, a white college student was sexually assaulted by a man in her apartment. She later identified a 22-year-old black man in the photo array whose name is Ronald Cotton. Cotton was ultimately convicted twice in January 1985 and November 1987, respectively based on the testimony of Thompson. After serving 10.5 years in prison, Cotton was finally exonerated by DNA evidence that was unavailable at the time of his trial. What is interesting about Cotton's wrongful conviction is that Thompson was extremely confident at the time of identification, yet the real perpetrator turned out to be another person whose name is Bobby Poole. Cotton's wrongful conviction presents a puzzling situation to us: Why Thompson eventually identified a wrong person even though she was extremely confident that she picked the right person during the lineup? Does race play a role in Cotton's wrongful conviction?

It is generally believed that people tend to be better at recognizing faces of their own races in comparison to faces from other racial groups because of the extensive experience with people from the same racial group. This tendency is called the other-race effect (ORE), or sometimes being referred as

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cross-race effect, own-race bias, and other-race bias. Regardless of whether the other-race effect is innate behavior or it is influenced by racial bias, the other-race effect has been proven that it indeed exists in human memory mechanism (Yaros et al., 2019). The other-race effect can be very tricky in the process of eyewitness identification primarily because the bias effect for face recognition may enhance same-race at the expense of other-race face detection (Yaros et al., 2019).

In order to understand how the other-race effect impacts the eyewitnesses' decision time and identification accuracy, Dodson and Dobolyi (2015) conducted a study to examine the other-race effect on (a) confidence ratings that are given to line up identifications, and (b) the relationship between decision time, confidence, and identification accuracy. The subjects of the study consisted of 1656 individuals located in the United States and they were required to complete the task over the Internet via Amazon's Mechanical Turk. Of those 1656 subjects, 1482 of them identified themselves as Caucasian Americans and the remaining 174 subjects identified themselves as African Americans.

The subjects were first asked to observe twelve target faces that would be tested later with each target faces seen twice (Dodson and Dobolyi, 2015). They were further informed that the faces would be shown one by one and some of the faces may repeat. During the test phase, the subjects were presented with a series of six-person lineups and they were specifically informed that they do have a "no choice" option. Each subject encountered a total of 12 lineups with three white lineups and three black lineups randomly assigned as target present lineups whereas the remaining six lineups were target absent lineups. A confidence scale would appear underneath the lineup upon making a choice to let the subjects select their confidence level about the likely accuracy of their identification. In addition, Dodon and Dobolyi ensured that the first and last two faces of the encoding phase were the faces of filler that would never appear in the test phase in order to counteract serial position effects<sup>5</sup>.

The study done by Dodson and Dobolyi (2015) found that the eyewitnesses generally showed less accurate memory for other-race than same-race target faces in the lineup. Moreover, the research finding

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<sup>5</sup> Serial position effect also called as the primacy and renency effect refers to the tendency to more easily recall items at the beginning and end of a sequence (Johnson, 2020).

also discovered that a better calibration of confidence to accuracy was achieved when the participants responded to same-race target faces as compared to other-race target faces. Overall, the confidence level of choosers (participants who were able to identify a perpetrator) was more closely aligned with the identification accuracy (e.g., high confidence = high accuracy; low confidence = low accuracy) when the participants chose a target face of the same-race in comparison to other-race target face. Taking all the above findings together, the study concluded that other-race effect was observed to be present on the calibration of confidence to accuracy for choosers but absent for non-choosers. Interestingly, the other-race effect appeared on both Caucasian American subjects and African American subjects.

To explain the same-race versus other-race effects on calibration, Dodson and Dobolyi (2015) contended that the subjects (both Caucasian Americans and African Americans) were significantly more overconfident when choosing a cross-race face than a same-race face, given the confidence rating provided by themselves earlier in the test phase tend to be higher when identifying a same-race face than other-race face. Importantly, this finding can be applied to the real-world settings given the results of this experiment reflected that eyewitnesses are vulnerable to being significantly more overconfident when identifying a perpetrator of other-race than a perpetrator of same-race.

This major finding is consistent with past research of the other-race bias phenomenon in memory for human faces conducted by Meissner and Brigham in 2001. Meissner and Brigham analyzed data collected from 39 research articles that consisted of 91 independent samples and approximately 5,000 respondents. The meta-analysis results showed that the subjects were over 2.2 times as likely to accurately identify same-race faces as new (never seen before) versus old (having been seen before) than other-race faces. This finding pointed out that the majority of misidentifications for faces of other-race are false alarms which means they mistakenly identified an other-race face as having been seen before. On top of that, Meissner and Brigham discovered that the own-race effect did not appear to have a correlation with one's level of racial prejudice which means humans just tend to recognize faces from the same racial group more easily regardless of their levels of racial bias. Nevertheless, it was also observed that the own-race effect was closely intertwined with other external factors such as study time and retention interval.

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Misidentification as a result of own-race bias is especially harmful in police lineup when the case involves cross-racial eyewitness. Although the "mirror effect" pattern triggered by the own-race bias undeniably helps to yield a higher proportion of hits and a lower proportion of false alarms in identifying perpetrator of the same race, yet it also significantly increases the proportion of false alarms and decrease the proportion of hits when the eyewitness is asked to identify a perpetrator of a different race. Thus, Meissner and Brigham (2001) recommended the use of expert testimony in cross-racial identification rather than solely relying on eyewitness identification testimony.

### **5.3 The Own-Gender Bias Effect in Human Memory**

The own-gender bias effect suggests that people are generally better at recognizing faces of people from their own gender. This means that men are typically better at identifying male faces compared to female faces while women are better at identifying female faces compared to male faces. However, it is widely believed men and women do not perform equally well in remembering faces of the same gender as well as faces of different gender primarily because of the differences in some cognitive abilities between men and women (Rehman, 2013).

Rehman (2013) conducted three empirical studies to explore the generality of sex differences displayed in face recognition for faces of different genders, ages, and ethnicities. In Study I, Rehman examined the difference of both men's and women's performance on a face recognition task for Bangladeshi and Swedish male and female faces of adults and children. The data yielded showed that women were able to recognize more female and girls' faces than male and boys' faces, independent of whether the recognized faces were young or old and were of Bangladeshi or Swedish origin. In contrast, men showed no significant difference in their ability to recognize faces of their opposite gender. In particular, men were able to recognize the female and girls' faces more accurately than they recognize male and boys' faces. This result indicated that women do display a reliable own-gender bias whereas men do not display own-gender bias.

In Study II, Rehman (2013) investigated the sex difference displayed by children in face recognition memory. Based on the result of Study I, it was expected that girls would display a stable own-

gender bias. Consistent with the earlier study, girls also outperformed and demonstrated a greater face recognition ability than their boys counterparts even in a more complicated and constrained face recognition condition where the children's degree of familiarity with another ethnicity is low. In order to understand the mechanisms of sex difference in face recognition ability and the own-gender bias displayed particularly by women, Study III done by Rehman (2013) looked into both men's and women's recognition performance on androgynous faces. Androgynous faces are non-gender specific faces that lie in the midpoint of masculine and feminine looking. Each androgynous faces were labeled as either "men" or "women" and then presented to the subjects for evaluation. Again, the findings were consistent with the two previous studies as women exhibited an overall face recognition advantage. Women who were told to specifically remember female faces still able to recognize more female faces accurately than women who were told to remember androgynous faces.

Similar to previous studies, Lewin and Herlitz (2002) also did not observe the own-gender bias effect for men's performance in identifying the faces of male perpetrator, given that the men subjects performed similarly as their women counterparts in identifying the faces of male perpetrator. 192 subjects of 20 to 40 years of age who had Swedish as their first language were recruited to participate in this research. Of those 192 subjects, 93 of them were men whereas 99 of them were women. These subjects were first randomly assigned to one of the following two conditions: (a) the full-face condition, and (b) the features-only condition. There were 42 men and 52 women placed in the full-face condition whereas 51 men and 47 women were allocated to the features-only condition. Next, the subjects are tested in groups of up to ten people in the following order: (1) presentation of the first set of faces, (2) three verbal fluency tasks, (3) face recognition test, (4) two synonym tasks, (5) presentation of the second set of faces, (6) mental rotation task, and finally the face recognition test.

The hypothesis that women tend to perform better than men in the face recognition tasks was supported in this research done by Lewin and Herlitz (2002). The female superiority in face recognition tasks was a consistent phenomenon irrespective of the slow presentation condition or fast presentation condition and whether the perpetrator was presented in full-face condition or features-only condition.

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However, it is important to note that women's superiority in recognizing faces only limited to faces of the same gender. There was no significant gender difference in the recognition of male faces. Taken together, these findings concluded that gender differences might present in cross-gender identification, particularly when the faces of perpetrator and filler presented are females.

The reason why women tend to remember female faces to a greater extent than male faces is still remaining unclear. One proposition is that women generally demonstrate greater interest in and attention towards other individuals which in turn enhance their ability in face recognition memory (Lewin & Herlitz, 2002). Comparable with the own-race effect, the "mirror effect" pattern as a result of the own-gender bias also significantly increases the proportion of false alarms and decrease the proportion of hits when the eyewitness is asked to identify a perpetrator of a different gender. And again, the own-gender bias is not certainly fueled by sexism, it is just that humans are notoriously poor at differentiating between the members of genders different from our own.

Human memories are not literal snapshots. Our brains tend to restitch the memory each time we try to recall a particular event. Specifically, when a person's confidence level is low, then he or she is more vulnerable to what others say. This indicates that eyewitnesses who have a low level of confidence are prone to conform to others' memories, given that they would be more likely to think that others who are also involved in the criminal event paid more attention than him- or herself during the occurrence of crime. On the other hand, the own-race bias and own-gender bias that exist in human memory mechanisms can be harmful to eyewitness identification accuracy because the "mirror effect" pattern caused by the bias could significantly raise the proportion of false alarms and reduce the proportion of hits. Even worse, both own-race bias and own-gender bias are innate but not learned which means it is unlikely that eyewitnesses can completely avoid their own biases during the identification procedure. This thesis will discuss more about the ways of countering and minimizing the bias effects in human memory later.

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## 6. Race and Eyewitness Identification

Edlund and Skowronski (2008) conducted a study to examine the role played by race in police lineups and how racial prejudice affects the perpetrator identification accuracy. Two experiments with two distinct lineup methods (sequential identification method & traditional simultaneous lineup procedure) were conducted to find out the relationship between racial prejudice and identification accuracy. In Study I, every participant was expected to complete four different tasks that were designed to measure the accuracy of each perpetrator identification decision. The subjects consisted of 677 undergraduate students. Of those 677 participants, 424 of them identified themselves as Caucasians, 142 of them were African Americans, 44 of them were Asian Americans, and the remaining 20 participants were classified as self-identified others.

First, the participants were asked to view two seven-second video vignettes (one version of the shooting depicted an African American perpetrator and the other one depicted a Caucasian perpetrator) and then described in one or two sentences what had occurred in each vignette. Next, six non-perpetrator photos were presented sequentially to the participants, and they were required to determine if the person shown in the photo had committed shooting in the vignette presented earlier. The third task involved a computerized race version of the Implicit Associations Test. The participants were asked to identify a list of Caucasian names, African American names, pleasant words, and unpleasant words that were presented individually on the screen by pressing one of two keys on a computer keyboard. Lastly, all the participants were requested to complete the Quick Discrimination Index, an explicit measure of prejudice. The Quick Discrimination Index is a self-assessment inventory designed to measure an individual's subtle racial bias and the score range is from 30 to 150, with a higher score suggesting a higher level of explicit racial prejudice.

The materials and procedures in Study II were identical to Study I but with the exception that the six photos of the perpetrator were presented simultaneously (two rows of three photos) to the participants. The perpetrator photo was always in the upper right position of the first row in the condition where the

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perpetrator was present. In contrast, the perpetrator photo was replaced with the same non-perpetrator photo used in Study 1 when the perpetrator was absent.

When the photos were presented sequentially (Study I), eyewitnesses who were high in explicit racial prejudice had a higher accuracy rate than eyewitnesses who were low in explicit racial prejudice in identifying the perpetrator of the shooting. However, this finding did not emerge for the case of a Caucasian perpetrator. Furthermore, non-African American eyewitnesses who were high in implicit racial prejudice were found to have a relatively higher accuracy rate than non-African American eyewitnesses who were low in explicit racial prejudice in identifying the African American perpetrator. Nonetheless, this finding also did not emerge for Caucasian perpetrators, nor did it emerge for African American eyewitnesses. On the other hand, there was no significant relationship between racial prejudice and accuracy of identification decisions when the perpetrator photos were presented simultaneously (Study II). Hence, Edlund and Skowronski (2008) tentatively concluded that high racial prejudice does not appear to be the critical factor that causes bias against African American perpetrators when police lineups are conducted by using photo spreads identification techniques.

In a study on “own-race bias” in police lineup construction, Brigham and Ready (1985) concluded that both Black subjects and White subjects displayed own-race bias by being more selective about own-race photos than other-race. Applying this finding to the real-world setting, it indicates that White police officers or constructors of lineup tend to select Black foils who are easy to reject by the eyewitness whereas Black police officers or constructors of lineup tend to choose White foils who are easy to reject by the eyewitness. This phenomenon is actually undermining the identification accuracy because it might create an unintentional race-based bias in the lineup procedure. Thus, having police officers or constructors of lineup to create only the same race lineup could significantly reduce eyewitness misidentification that results from racial bias.

Previous studies (Lipton, 1996; Billig & Milner, 1976) had consistently proven that police officers generally did not appear to be better than civilians at facial recognition tasks. Based on these

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carefully conducted and replicable findings, Wilson et al. (2013) recommended that police officers who often serve as eyewitnesses should receive cross-race individuation training in order to improve overall eyewitness accuracy. As part of the individuation training for police officers, Wilson et al. (2013) further suggested that (a) police officers should get sustained training discriminating among cross-race faces; and (b) police officers should be trained to habitually use an individuation mindset when engaging with suspects. Training individuals to focus on internal features (e.g. eyes, nose, and mouth) of unfamiliar faces may improve eyewitness identification accuracy in the common situation where external features (e.g. hair and face shape) have changed between presentation and identification (Paterson et al., 2017).

On top of that, Whittington et al. (2019) discovered that asking an eyewitness to predict their later lineup performance (predecision confidence) could harm the confidence-accuracy relationship. Two experiments were conducted to compare predecision confidence (immediately after encoding but prior to a lineup) and postdecision confidence (immediately after a lineup) in order to determine which produced a superior relationship with lineup identification accuracy. The data collected showed that predecision confidence assessment had a poor relationship with identification accuracy, whereas postdecision confidence was well-calibrated with identification accuracy. Based on this finding, Whittington et al. (2019) suggested that police officers should not ask the eyewitnesses to predict their later lineup performance (predecision confidence) in order to ensure the identification accuracy.

National Research Council et al. (2014) recommended that the Courts should bring in experts to advise juries about the ways that eyewitness evidence can fail in order to counter that lack of awareness. Additionally, the report also suggested the adoption of “double-blind” lineups and the recording of eyewitnesses’ confidence levels prior to identifying the perpetrator. The use of “double-blind” lineups leaves the police officers unable to offer biasing cues to an eyewitness since the police officer who administers the lineup does not involve in the investigation process and thus he is clueless about the suspect. In the meantime, the finding also urged that recording the confidence level of an eyewitness upon first identifying a suspect can increase the accuracy rate. However, it is important to note here that this finding is contradicting with the finding of Whittington et al. (2019).

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Surprisingly, an eyewitness's level of racial prejudice is unrelated to the eyewitness identification accuracy if the lineup members are presented simultaneously. However, eyewitnesses with a high level of racial prejudice appear to have a relatively higher accuracy rate in sequential lineups for reasons that remain unclear. Further, eyewitnesses who display own-race bias tend to be more conservative in selecting the perpetrator which means they easily reject fillers of different race during the lineup procedure. Taking all the above findings together, it is more favorable to have police officers picking the lineup members of the same race and administering only the same race lineup.

## **7. Role of Police Officers in Manipulating the Eyewitness Testimony**

Police officers generally play a critical role in conducting lineups because they not only have the responsibility to dictate what the perpetrator would wear or even say during a lineup, but they are also in charge to work with the eyewitnesses to identify the perpetrator of a crime. The body language of the officers, the photography presented, and the police instructions given to the eyewitnesses often are the key factors that influence the accuracy of identification.

Biased police instruction is one of the biggest aspects that often lead to false positive identification of innocent suspects. Biased police instruction is either suggesting the eyewitness that the perpetrator is present or otherwise discouraging a "no choice" response which hinting eyewitness that he or she must make a positive identification (Stebly, 1997). It is not necessarily true that biased police instructions are caused by direct prejudice, racism, or discrimination because implicit bias may also play a role in giving out eyewitness cues. Implicit stereotypes such as unconscious associations of Black young men with crime tend to make the police officers jump to the conclusion quickly and see them as suspects without doing further investigation which then increases false identification of innocent people. Various studies have been conducted to examine the relationship between police instruction bias and the accuracy of eyewitness testimony. In 2014, American Psychological Association published an article that discussed about how the instructions given by the police officer influence the reliability of eyewitness identification.

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The eyewitnesses involved in the research are given two sets of instructions with a subtle difference: One set implied that the eyewitness had to make a choice (biased instructions) whereas the other set implied that the eyewitness did not necessarily have to choose someone which means they are provided with a “no choice” option (Malpass & Devine, 1981). The result showed that the reliability of eyewitness identification does depend on the instructions given by the police officers as more people make a choice under biased instruction and relatively fewer people make a choice under unbiased instruction when the foil is absent. Malpass and Devine (1981) then concluded that unbiased instructions like the “may or may not present in the array” does help to reduce choosing which in turn decreases the possibility of misidentification without significantly decreasing correct identification.

The above finding is consistent with the finding of a meta-analytic review of lineup instruction effects that was conducted in 1997. Steblay (1997) examined 18 studies and included the role of moderating variables in the instruction procedure in order to review the hypothesis that biased police instruction increase the likelihood of eyewitness making a choice and the identification is lower in comparison to unbiased police instruction. The data yielded was in support of the hypothesis and the most reliable effect can be seen when the instruction content suggested that the perpetrator is present in the lineup and which provides “no choice” option. As a short conclusion, eyewitnesses are typically more vulnerable when subjected to informational influences like biased police instruction which then lead to a significantly higher level of choosing. Relatedly, a higher level of choosing will then lead to another issue – a higher level of eyewitness misidentification. Even though the results clearly demonstrated the negative impact of biased police instruction on eyewitness identification accuracy, still it is also worth to note that biased police instruction tend to produce a higher level of accuracy in target-present lineup because (a) the suspect indeed is always included in the lineup and thus increased choosing may be helpful, and (b) the use of relative judgement strategy by the eyewitness. However, the conclusion about the impact of biased police instruction on target-present lineup should be tempered given the data collected is not complete yet.

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Another type of police instruction that is commonly utilized in police lineups is the appearance-change instruction (ACI) where the eyewitness is being informed prior to a lineup that the appearance of perpetrator might have changed since the time of the crime due to weight loss or gain, grown or shaved a beard, etc (Charman & Wells, 2007). An empirical study had conducted to examine how the ACI influence the identification decision. The research involved 289 subjects first watching a video crime with four perpetrators and then followed by identifying the perpetrators from four six-person array that may include or exclude the perpetrators who appeared in the video (Charman & Wells, 2007). Even though all the subjects (both who received and did not receive the ACI) are warned that the perpetrators may or may not be present in the lineup, still the result strongly suggested that the ACI did not improve the likelihood of correct identification. In addition to that, ACI was deemed to increase false alarms and filler identifications, but it did not increase the identification of the perpetrator. Overall, Charman and Wells (2007) found that the ACI did not serve its intended purpose of improving the accuracy rate because it made the eyewitness more lenient which in turn decreased their criterion on making a decision.

Additionally, police officers might unconsciously influence and communicate their thoughts or expectations to the eyewitnesses through both verbal and non-verbal communications. For example, comments from the officer like “Good job” or “Excellent” or even subtle responses such as affirming nod or a little grin after the eyewitness identifies someone from the array could possibly contaminate the eyewitness level of confidence. Eyewitnesses tend to take these kinds of comments as reinforcement, encouragement, or cues on how to behave in ways that support the police officers’ expectations. Furthermore, innocuous comments like “Take your time” and “Think or look carefully” might also prompt the eyewitnesses the signal of whom to identify or whether should they make a choice. Verbal praise, facial expression, posture, gesture, and tone of voice can be very tricky because they might boost the confidence level of the eyewitness which in turn increases the chance of false positive identification, especially in the target-absent lineup.

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In addition to that, police officers may engage in suggestive conduct if their leading questions will suggest an absolute answer from the eyewitness or may possibly contaminate the eyewitness's memory (National Criminal Justice Reference Service, 2003). In general, suggestive questions often count on assumptions and negative statements to induce a particular answer that the police officers expect or desire (Conservapedia, 2016). For example, asking the eyewitness "Wasn't the car silver?" instead of "Was the car silver?" constitutes a leading question. Even though both questions carry the same meaning, yet the former is more likely to make a reasonable person think the car is indeed silver and then answers "yes". Other examples of leading questions are "Didn't the crime happen at 2 a.m.?" and "You saw him shot right?". These kinds of questions violate the perpetrator's due process rights which may significantly reduce the reliability of an eyewitness's testimony which then increases the risk of being thrown out of court.

It is inevitable that eyewitnesses will observe the police officers' response after identifying someone as the perpetrator because eyewitnesses want their testimony to be as beneficial as possible to the prosecutor or defense. Hence, they will try to seek approval or feedback from the reaction of lineup administrators to make sure their performance aligns with the expectations of the side they are supporting. However, currently there is no standardized police lineup and no specific legal requirements or imposed on the police lineup practice to safeguard the reliability of eyewitness testimony. Until today, lineup procedures are still conducted differently from states to states, from police department to police department, and even different from lineup administrator to lineup administrator within the same police department (Ollove, 2018).

It is always worth keeping in mind that everyone including police officers holds some sort of unconscious bias about a certain group of people, even though some individuals may not recognize it as true. Implicit bias is threatening the reliability of eyewitness identification because police officers may simply jump to the conclusion that an individual is the perpetrator merely based on their past experience without doing further investigation. Research do show that police instruction bias and eyewitness identification accuracy

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are closely intertwined with each other. And unfortunately, there is still no standardized lineup procedure or lineup instructions being established to ensure the eyewitness testimonies are as accurate as possible. One way to reduce human factor wrongful conviction is to eliminate the presence of police officers during the lineup procedure and this could be done by employing computerized photo array. This thesis will discuss more about computerized photo arrays in the next section.

## **8. Recommendations to Improve the Future Eyewitness Identification**

### **Procedures**

Last but not least, this thesis has identified a few areas and shortcomings of existing eyewitness identification procedures that can be strengthened or fixed in consideration of past literature on eyewitness identification. The practices that will be considered here involve the perspective of sociology, legal area, and psychology. Furthermore, the recommendations made below also seek to establish the best eyewitness identification procedures through the incorporation of the best available scientific knowledge in order to strengthen the value of eyewitness testimony in the courtroom.

#### **8.1 Apply deoxyribonucleic acid (DNA) technology to all cases**

In about 75% of criminal cases overturned through deoxyribonucleic acid (DNA) testing, those innocent defendants were convicted as a result of eyewitness misidentification (Innocence Project, 2008; see also New England Innocence Project, n.d.<sup>6</sup>). Today, the biggest obstacle faced by the convicted defendant in overturning the verdict is that many jurisdictions officials refuse to let the convicted appeal their cases and have the evidence tested with DNA technology (American Civil Liberties Union, n.d.)<sup>7</sup>. The officials argued that the DNA testing method would reopen too many old cases (American Civil Liberties Union, n.d.)<sup>8</sup> and reopening a case usually turn out to be a complicated and time-consuming

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<sup>6</sup> Retrieved from <https://www.newenglandinnocence.org/eyewitness-misidentification>, accessed on December 19, 2021.

<sup>7</sup> Retrieved from <https://www.aclu.org/other/dna-testing-and-death-penalty>, accessed on September 09, 2021.

<sup>8</sup> *Id.*

process. Back then, positive identification of a suspect can quickly lead to an arrest of the individual and the act of identification by the eyewitnesses in the lineup often is the decisive factor for the tribunal to find someone guilty. However, since the advent of forensic DNA analysis technology, eyewitness testimony is slowly replaced by DNA testing method that allows the suspect to be identified at a much higher accuracy rate when biological evidence like blood, skin tissues, saliva, and urine is detected in the crime scene.

Generally, DNA testing today is being utilized in one of two ways. In the circumstances where the suspect is identified, that particular individual's DNA sample will be compared with the biological evidence obtained from the crime scene (U.S. Department of Justice, 2017). The result of DNA testing comparison may help to eliminate the suspect or confirm the hit (U.S. Department of Justice, 2017). In contrast, when the suspect is unable to identify, then the recovered crime-scene DNA will be used to compare with the national DNA databases, particularly the profiles of convicted felons to identify the potential suspect (U.S. Department of Justice, 2017). Database hits are sometimes helpful in linking serial crimes and solving the unsolved mysteries (U.S. Department of Justice, 2017). In short words, forensic DNA analysis is a powerful criminal justice policy tool because it not only can be used to identify a criminal suspect with incredible accuracy, but it also can be used to prove the innocence of an individual and exonerate a person who was previously falsely accused due to false identification.

As for now, all 50 states have the DNA access law which means those inmates who maintain their innocence may choose to do a post-conviction DNA testing in order to prove their innocence. However, there are 13 states that never have DNA evidence used as the direct evidence to exonerate people who were wrongly convicted (Emmanuel, 2019). The 13 states are Alaska, Arkansas, Delaware, Hawaii, Iowa, Maine, New Hampshire, New Mexico, North Dakota, Oregon, Rhode Island, South Dakota, and Vermont (Emmanuel, 2019). Wrongful conviction experts had offered a couple of explanations for these 13 outliers (Emmanuel, 2019). First, some of the states do not require the preservation of evidence upon conviction of a defendant (Emmanuel, 2019). Second, some states hold a very high threshold for post-conviction

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DNA testing and appeals (Emmanuel, 2019). Third, as mentioned on the above, some jurisdiction officials are resisting post-conviction DNA testing (Emmanuel, 2019). Fourth, advances in the field of forensic DNA testing have significantly reduced the number of wrongful convictions as compared to the past (Emmanuel, 2019) which in turn require a higher reasonable standard for the incarcerated people to perform DNA testing.

To address the shortcomings in post-conviction DNA testing, the existing evidence preservation law should be amended that all 50 states should be required to preserve the evidence of crime upon conviction of a defendant regardless of the seriousness of the crime. Currently, not all states require the preservation of evidence upon conviction of a defendant (Innocence Project, 2019). And even if they do, the preservation of crime scene evidence requirement is limited to only a certain kind of crime (Innocence Project, 2019). The failure of states to preserve evidence for one's length of incarceration ultimately cause many inmates who still maintain their innocence being denied for their habeas corpus petition for post-conviction DNA testing (Innocence Project, 2019). Therefore, a meaningful evidence preservation law should be able to (a) provide the ability to prove one's innocence; (b) include the retention of all items of physical evidence related to the crime and unsolved cases; (c) require those evidence to be preserved for the period of time that the person remains incarcerated; and (d) let the court determine the appropriate remedy if the evidence is improperly destroyed during or after the investigation and conviction (Innocence Project, 2019).

On the other hand, property crimes and other minor crimes usually do not receive top priority for DNA analysis perhaps because the police officers often assume that the perpetrators do not leave behind their DNA for these types of crimes (Zedlewski & Murphy, 2006). Importantly, the cost of DNA testing is another major concern of why DNA technology is still not widely applied to property crimes and other minor crimes. DNA analysis is so costly due to the widespread demand and it also depends on other factors like the complexity of the test, the number of samples tested for each case, the cost of collecting biological evidence, the testing fees paid for an outside vendor, and pursue investigative leads generated

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by the Combined DNA Index System (CODIS) (Zedlewski & Murphy, 2006). Despite the high cost of DNA testing, it is still highly recommended to employ DNA testing for property crimes and other minor crimes given that the risk of minor crime perpetrators will commit more serious crimes outweigh the cost issue (Zedlewski & Murphy, 2006). Further, Bud Stuver, the supervisor of the DNA Testing Program at the Miami-Dade County Police Department, noted that the result of DNA testing can effectively shorten the actual trial time and substantially reduce the court fees (Zedlewski & Murphy, 2006). He reasoned that the suspects are more probably to plead guilty when they know that the prosecutor holds inculpatory evidence that can establish their guilty.

## **8.2 Develop a standardized instruction to minimize their bias**

As discussed above, a biased police lineup is not necessarily caused by racial bias in policing. More often, implicit bias is the biggest concern in suggestive lineup procedures. Police bias may be inevitable, but it can be minimized if a standardized lineup instruction is available for all police officers when conducting lineup. Below are some of the fundamental lineup instructions that are strongly recommended to adopt into the standard practice:

- (a) The suspect may or may not be in the lineup;
- (b) You should not feel compelled to make a decision;
- (c) The police officer or lineup administrator does not know the suspect's identity;
- (d) The investigation will be continued to carry out with or without an identification; and
- (e) It is as important to exclude innocent persons as it is to identify the perpetrator.

A perfect example of standardized lineup instruction to minimize any potential suggestiveness is written as below:

“You will be asked to view a series of photos of individuals. It is just as important to clear innocent persons from suspicion as to identify guilty parties.

I do not know whether the person being investigated is included in this series. Individuals present in the series may not appear exactly as they did on the date of the incident because features such as head hair and facial hair are subject to change. You should not feel that you have to make an

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identification. If you do identify someone, I will ask you to describe in your own words how certain you are.

The photos will be shown to you one at a time and are not in any particular order. Take as much time as you need to examine each photo. If you make an identification, I will continue to show you the remaining photos in the series.

Regardless of whether you make an identification, we will continue to investigate the incident. Since this is an ongoing investigation, you should not discuss the identification procedures or results. (Indiana University Police Department, 2020)”

### **8.3 Implement computerized photo array and sequential lineup**

A few studies (e.g., Edlund & Skowronski, 2008; Wilson et al., 2013; Sporer, 2001; Wells & Olson, 2001) have recommended that a sequential lineup is better than a traditional simultaneous lineup at reducing eyewitness errors. Particularly, presenting the perpetrator face one at a time is found to be useful at countering the cross-race effect in police lineups. Speaking of the cross-race effect, Zhao et al. (2014) discovered that presenting the eyewitnesses with rigidly moving faces instead of static faces would eliminate the cross-race effect in identifying the perpetrator. However, photo array generally has a higher accuracy rate when both the victim and perpetrator are of the same race. Photo arrays tend to have a better accuracy rate because the procedure could be done without the presence of police officers (computerized photo array) which in turn help remove any potential bias. Additionally, a computerized photo array can efficiently prevent the eyewitnesses from missing important instructions such as “the perpetrator may or may not present” and precisely record the response given by the eyewitnesses (Brewer, 2011). For example, it allows a clear line to draw between a “not present” response and a “not sure” response. Another practical advantage offered by computerized photo array is significant probative value where it can strictly record the eyewitness’ response time which is very helpful in determining the confidence level expressed by the eyewitness at the time of identification (Brewer, 2011).

### **8.4 Implement double-blind administration technique (Folder System)**

The double-blind administration technique refers to the eyewitness identification procedure conducted in a way that both eyewitness and police officers are unaware of the lineup members’ identity. It is highly recommended to adopt the double-blind lineup whenever possible because research (e.g.:

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National Research Council, 2014) have consistently found that double-blind administration effectively reduces police bias during the lineup. Police officers who administer the lineup should not be aware of which lineup member is the suspect and whether if the suspect is present or absent. This precaution can prevent the police officers from intentionally or unintentionally influence the eyewitness and steer them to a particular choice in accordance with their expectations.

### **8.5 Videotape the whole identification procedure and record the eyewitness' level of confidence**

Videotaping the whole identification procedure and recording the confidence level of eyewitnesses after a decision-making should be adopted as standard practices in the police lineup because both offer a few benefits. Videotaping the procedure essentially serves two basic purposes: (a) act as a deterrent to police misconduct, especially help to discourage the abuse of authority by police officers in order to get their desired eyewitness testimony; (b) preserve details and conditions of the lineup session which later can be used in the courtroom for suppression hearing purposes (when present in front of the judges), advocacy purposes (by prosecutors or defense attorneys), and fact-finding purposes (when present in front of juries) (Kassin, 1998). On top of that, documenting the eyewitness' level of confidence upon making an identification is also critically important because the confidence statements can be used to enhance the decision-making of judges and juries.

### **8.6 Measures to take while in the courtroom**

The research done by the National Academy of Sciences on eyewitness identification found that the careful use and understanding of scientific evidence to guide the trier of fact in the courtroom would be the best approach that can be taken for the legal regulation of eyewitness testimony (National Research Council, 2014). Judges are recommended to make appropriate basic pretrial inquiries whenever eyewitness testimony is offered as evidence in the cases (National Research Council, 2014). In addition, juries should be made aware of prior eyewitness identifications (National Research Council, 2014) and be educated on the pitfalls of eyewitness testimony. This is because one of the reasons why so many

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innocent people were wrongly convicted based on eyewitness testimony is that juries were not provided with any special guidance on factors affecting human memory in past cases (Sanders, 1984). Importantly, clear, concise, and standardized jury instruction should be widely adopted in the courtroom when conveying important information regarding eyewitness identification to the juries (National Research Council, 2014).

Moreover, expert testimony provided by professionals like doctors and forensic scientists on relevant principles of eyewitness identification is encouraged to integrate into the courtroom (National Research Council, 2014). Expert testimony is regarded as a more reliable form of evidence as compared to eyewitness testimony because expert witnesses do not have stakes in the outcome of the lawsuit, so the chance of expert witnesses advocating for one side or the other when expressing their thoughts is relatively low. Apart from that, expert witnesses have credentials as well as relevant expertise and experience in their field, so they are capable of providing their expert opinion in order to improve the judges' or juries' evaluations of the eyewitness evidence. Thus, it is expected that eyewitnesses solely play the role of presenting facts in the courtroom while expert witnesses are responsible for giving their independent opinion in the subject matter (Johnson, 2020).

### **8.7 Use mock witness to assess lineup fairness**

A mock witness is a person who has nothing to do with the criminal event or the investigation, but is asked to identify the perpetrator before the eyewitness does. It is recommended that the police lineup can be tested through mock witnesses first in order to measure the level of potential bias in the upcoming police lineup. Mock witnesses are completely ignorant of the perpetrator and hence pick the perpetrator blindly. Therefore, if the mock witness successfully identifies the perpetrator at a higher than chance guessing, then the police officers should realize that something is biasing the lineup procedure (Johnson, 2020). In short words, a successful mock witness is a warning for the police officers that they are subjecting themselves to the risk of false indictment (Johnson, 2020).

## **9. What can an eyewitness do?**

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Unlike hearsay, eyewitness testimony is generally admissible as a form of evidence to find someone guilty in the courtroom. Furthermore, eyewitnesses who appear to be very confident are immensely powerful when testifying in the witness stand. Nevertheless, highly confident eyewitnesses do not necessarily imply they have a higher accuracy rate (even though they do tend to be slightly more accurate) because confidence and accuracy are the results of two different processes (Johnson, 2020). Confidence often can be strengthened over time as eyewitness usually recited their story over and over again to family members or friends before testifying at a trial, but their testimony typically does not become more accurate in a corresponding manner (Johnson, 2020). Thus, confidence is more like a product of beliefs, anxiety, and rehearsal while accuracy is a product of those variables that influence human memory and perception (Johnson, 2020).

To prevent the confidence level of eyewitnesses grows to exceed accuracy to an unwarranted degree, eyewitnesses are strongly recommended to adhere to the following guidelines:

- (a) Record the witnessed event as detail as possible;
- (b) Go to the nearest police station and give your witness statement promptly after the criminal event took place;
- (c) Avoid having a discussion with co-witnesses or even the victim about the criminal event in order to prevent memory conformity;
- (d) Attend the lineup as soon as possible;
- (e) Pay attention to the lineup instructions; and
- (f) Avoid feeling pressured to make an identification when the suspect does not seem to appear in the lineup.

It is crucial for eyewitnesses to bear in mind that they should not feel compelled to make an identification during the lineup. If an eyewitness feels compelled to make a selection and eventually selects a filler, then the eyewitness is no longer qualified to make an identification later and cannot attend the subsequent lineups which the actual perpetrator might present. Eyewitnesses should not worry that the

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perpetrator will be allowed to walk free even if there is no positive identification being made, given that there will be other evidence to prosecute the guilty party. Last but not least, the confidence level of an eyewitness is only considered to be informative if the eyewitness does not expose him- or herself to other influences before making an identification. Thus, it would be in the eyewitness's best interest if he or she go to the local police station to make a statement right after being aware of a crime.

## **10. Conclusion and Discussion**

Eyewitness identification is a powerful but flawed tool in the United States criminal justice system. Although the testimony provided by eyewitnesses often appear to be convincing and solid, yet 28% of all wrongful convictions in the United States involve mistaken eyewitness identification. Wrongful convictions are bad because it could cause extensive damage to the innocent defendant, victim, both the defendant's and victim's families as well as the society. Particularly, the innocent defendants not only will experience negative feelings, but they also have to deal with the stigma attached to a former convict even after being proven innocent. Convictions may be overturned, but the wrongly convicted individuals are forever tarnished (Clow & Leach, 2013). Therefore, this thesis wants to highlight the danger of eyewitness misidentification.

Furthermore, people tend to characterize an eyewitness's false identification as the failure of visual perception or human memory imposed by our biological nature and disregard for other factors. The findings of this study demonstrated that eyewitness misidentification can be also caused by police implicit bias, lack of standardization in lineup instruction, and the eagerness of an eyewitness to make a positive identification for fear that a negative identification will let the perpetrator walk free. To address human factors in wrongful convictions, this thesis suggested the wide adoption of computerized photographic array into practice whenever it is possible. Research findings show that computerized presentation will help to reduce the interaction between the police officers and the eyewitness which in turn minimize any potential suggestiveness resulting from both intentional and unintentional cues from police officers.

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On top of that, the use of eyewitness identification as the direct or the sole evidence to convict an individual should be avoided whenever is possible in preference for the use of DNA evidence, given that DNA analysis is the most accurate forensic science technology we have today. Based on the best available scientific findings, we understand that the sequence of human's DNA is 99.9% identical from one person to the next. Even though the remaining 0.1% does not sound impressive, yet it actually holds important information that could show an individual's distinctiveness in relation to other individuals. Furthermore, the DNA testing method is repeatable which means the analysis can be conducted over and over again until conclusive data is yielded. However, it is also worth noting that DNA technology is not 100% foolproof, given that the results may be wrongly interpreted by the clinicians or the DNA specimen being mixed up. Future research should continue to expand on the dilemmas in forensic DNA testing.

Eyewitness identification is sometimes employed to leverage confession and affect the decisions of plea bargaining by the prosecutor or the defense. Some innocent defendants may opt to make a false confession due to the pressure of knowing that the prosecutors have secured an eyewitness testimony as a piece of evidence. Hence, they will admit to the crime they never do in exchange for leniency in sentencing. Furthermore, prosecutors tend to have the interest to convict a person in its efforts to represent and protect the society, hence sometimes they feel it is more important to let that one innocent suffer rather than letting ten guilty person escape. On the contrary, defense attorneys tend to advise their clients to accept the plea deal in order to avoid lengthy trials or lengthy incarceration periods knowing that how powerful both confession and eyewitness testimony be in the trial. False confessions may exacerbate the problem of wrongful convictions because most juries and judges indeed find confessions very convincing. Future research is recommended to build on this topic which is more about the relationship between eyewitness identification and plea bargaining decision.

In a nutshell, eyewitness identification could be used as one form of evidence to prosecute and convict an individual, but it is certainly not recommended to be used as the sole evidence to establish guilt. The overall reliability of eyewitness identification could be improved based on the recommendations above. Last but not least, future research is also proposed to look into circumstances

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where eyewitness identification is the sole prosecuting evidence and elaborate on ways to avoid wrongful convictions in one eyewitness case.

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