**The Link between Art and Law: Drawing as a Tool to Improve Eyewitness Identification Memory and Reduce Wrongful Convictions**

*Findings of pilot studies conducted in London and Florence*

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# Background

What, if any, is the link between art and criminal law? Moreover, if there indeed is a link between these two disciplines, can we transfer insights from the world of art to that of law, adjusting the knowledge drawn from each discipline to improve legal policy?

I posit that the link between these two ostensibly very different disciplines—criminal law and art, particularly drawing—is human memory. Thus, criminal law can and will benefit if it incorporates insights drawn from scientific research related to memory in the field of art. These insights can be used to improve police investigations of crimes involving eyewitness identification around the world, increase the quality of eyewitness identifications, and reduce the rate of eyewitness misidentification, thereby reducing the number of wrongful convictions.

# Eyewitness identification testimony

There is almost unanimous agreement in the legal field, particularly in the United States and

Canada, that eyewitness misidentification is the most common reason for miscarriages of justice and the primary cause of wrongful convictions. As I argued in my doctoral dissertation,[[1]](#footnote-1) the current situation in which a criminal conviction can rely upon a single piece of evidence that is so unsound is not reasonable or effective in the long-term.[[2]](#footnote-2)

Eyewitness identification evidence suffers from defects involving both the inadequacies of human perception and memory, and the faulty functioning of the various investigatory bodies. At times, these bodies work without adequate supervision and oversight, with no binding legislative rules to guide them. It is not surprising, therefore, that this situation leads to an unacceptable number of cases where, following a criminal conviction, a defendant is later proven innocent through post-conviction DNA testing. Consequently, it is vital to embark on a comprehensive reform of Israeli law relating to criminal convictions based on a single piece of eyewitness identification evidence.[[3]](#footnote-3) A model I proposed for structuring a new approach to eyewitness identification evidence, including an amendment to the law and the adoption of a requirement for an evidentiary supplement, has been included in a draft law, “Conducting Lineups, 2016.” This draft law provides a comprehensive legislative enactment regulating all the various aspects of police lineups in criminal law. It applies four main approaches: (1) comparing the underlying legal and psychological scientific presumptions regarding eyewitness identification evidence; (2) requiring evidence in addition to eyewitness identification in Israeli law (analogous rule in United States law requiring a scintilla-of-evidence in order to obtain a conviction based on a defendant’s confession given outside of court); (3) the case law doctrine of inadmissibility for illegally obtained evidence, anchored in *Yissacharov vs. Chief Military Prosecutor*;[[4]](#footnote-4) and (4) applying English law.

Prior to proposing the above model, I addressed the multi-faceted difficulty inherent in the interface between Israeli law and eyewitness identification evidence. This difficulty stems, first and foremost, from the inherently problematic nature of eyewitness identification evidence. Reasons for this include problems in evaluating eyewitness identification reliability, its susceptibility to various biases liable to influence eyewitnesses and result in mistaken identifications, and the significant risk of wrongful convictions arising from such problematic evidence. However, Israeli case law has not yet required the presentation of supplementary evidence as a condition for obtaining a conviction based on a single instance of eyewitness identification.

Conclusive proof of the considerable risk involved in convicting a defendant on the basis of a single piece of eyewitness identification evidence has been provided by the Innocence Project in the United States,[[5]](#footnote-5) which is committed to helping free prisoners who have been wrongfully convicted.[[6]](#footnote-6) According to the Innocence Project, 76% of wrongful convictions—cases in which convictions were later overturned through the work of the Innocence Project following post-conviction DNA testing—were based (at least in part) on mistaken frontal identification by eyewitnesses or victims. Such misidentifications sometimes resulted from the inherent biases and weaknesses of human memory, and sometimes from defects in how the identification process was conducted by the investigatory body.

Israeli law does not sufficiently recognize the problematic and complex characteristics of eyewitness identification. It is therefore insufficiently equipped to grant defendants appropriate protection from wrongful conviction. For example, to date, both the Israeli judiciary and legislature have failed to understand the anomalies of eyewitness identification evidence, such as its one-time nature. Usually, the investigatory body has only one opportunity to obtain such evidence, with no possibility of “improving” or “amending” it later. It is difficult, indeed almost impossible, for the defense to refute such evidence post hoc. Therefore, scrupulousness with respect to the rules intended to ensure the propriety of police lineups is of paramount importance. However, because the Israeli courts and legislature have not recognized that eyewitness identification is a singular and one-time piece of evidence, there are no binding rules in the legislation and regulations regarding how it is to be obtained. Nor is there any well thought-out and comprehensive doctrine of eyewitness identification.

The Israel Police has made an effort to formulate guidelines for police lineups. These guidelines are incorporated into the internal guidelines of the Israel Police Investigations and Intelligence Branch. However, they lack normative binding force, and if violated, do not give rise to any sanction of a punitive or evidentiary nature. Many are drafted solely as recommendations. As with case law, analysis of these internal guidelines shows that some are inconsistent with scientific evidence, and at times even clearly contradict it. This lack of a well-regulated body of law with respect to eyewitness identification evidence, including the absence of clear rules set forth in binding legislation, has a clear impact at all levels. Moreover, an examination of the existing rules and guidelines surrounding eyewitness identifications demonstrates that they are often unable to provide a defendant with appropriate protection against wrongful conviction. In addition, many of the rules are inconsistent with scientific research on human memory and cognitive psychology.

Furthermore, Israeli case law has yet to set out a clear and well-regulated evidentiary ranking of various kinds of police lineup. This is particularly concerning in view of the findings from many scientific studies that demonstrate different evidentiary value for different types of police lineups.[[7]](#footnote-7)

In recent years, moderate yet significant changes have taken place in Israeli law relating to eyewitness identification evidence. In June 2018, Israel’s Minister of Justice appointed a public Commission of Inquiry chaired by (retired) Supreme Court Justice Yoram Danziger to examine and correct wrongful convictions.[[8]](#footnote-8) The Danziger Commission focused on failures concerning eyewitness identification evidence as its first area of inquiry. On September 2, 2019, the Commission published its interim report,[[9]](#footnote-9) incorporating most of the suggestions from my testimony regarding necessary changes in police investigative work and internal procedures.[[10]](#footnote-10) It concluded that eyewitness identification evidence should be regarded with extreme caution and granted little weight. This conclusion was reached following many hearings with experts on eyewitness testimony and identification evidence, as well as with representatives from the Israel Police who routinely handle such evidence. The Commission also declared that a defendant should not be convicted solely on the basis of a single piece of evidence consisting of eyewitness identification. Further, police photograph (mugshot) identification should be given the weight of supplementary evidence only.[[11]](#footnote-11)

The Commission also concluded that changes should be made in all aspects of the treatment of eyewitness identification evidence. It based its conclusions on, among other things, ~~insights from Dan Simon’s seminal book~~ *~~In Doubt: The Psychology of the Criminal~~ ~~Justice~~* ~~Process~~[[12]](#footnote-12) and from my doctoral dissertation, and the dramatic data presented in –the study I conducted that ~~formed part of the Innocence Project in the United States~~. The Commission found that investigatory bodies should be instructed to give utmost consideration to extra-systemic variables beyond their control. Their recommendations focused on how investigators can often be influenced by biases and mistaken conceptions with regard to eyewitness identification evidence. Usually, formal identification procedures are divided into three main types: (1) a review of a photo album, which is mainly a procedure used by law enforcement for locating suspects rather than a formal identification procedure; (2) a photo lineup; (3) and a live lineup. In particular, these biases relate to decisions regarding the type of police lineup used, the manner in which such lineups were conducted, and the behavior of those conducting the lineup.[[13]](#footnote-13)

There are numerous variables that could potentially reduce the evidentiary value of eyewitness identification evidence. These include the criminal incident itself; the characteristics of the eyewitness; the length of exposure of the eyewitness to the incident; the distance between the eyewitness and the suspect; the level of lighting during the event; cultural-social characteristics; and the age of the eyewitness.[[14]](#footnote-14) The Danziger Commission determined that investigatory bodies should be instructed to give utmost attention to the systemic variables within their control, which could potentially reduce the evidentiary value of eyewitness identification evidence. Among these are the type of police identification lineup that the investigatory unit uses; the awareness of the police officer in charge of conducting the lineup regarding the identity of the suspect and his/her placement in the lineup; whether the police officer in charge of the lineup has given instructions or warnings to the eyewitness prior to/during the lineup; the significance of feedback given to the eyewitness prior, during, or after the lineup; the number of people, suspects, and eyewitnesses taking part in the lineup; documentation of the lineup by the investigatory body; and the level of confidence the eyewitness expresses and how it is documented by the investigatory body.[[15]](#footnote-15)

The Danziger Commission recommended, among other measures, conducting lineups as soon as possible after the criminal incident under investigation, when details regarding both the incident and the suspect (particularly his or her facial features) remain fresh in the memory of the eyewitness and requiring the investigatory body to include these systemic variables in its report of the lineup. One of the Commission’s significant recommendations in this context was that courts should not rely solely on a single piece of eyewitness identification evidence obtained by an eyewitness review of a police photograph album.

Thus, in recent years, criminal law in Israel has come to recognize that human memory can prove deceptive, prone as it is to biases and failures. As a result, it is difficult to trust eyewitness memory and base convictions on eyewitness identification evidence alone. That this recognition has penetrated Israeli law can be seen in the Danziger Commission’s recommendations, in my comprehensive study, and in *Jaber Abu Rakik v. State of Israel,[[16]](#footnote-16)* all of which call for changes in how police lineups are conducted. Both also suggest that the law be amended to require that convictions are based on a model involving evidentiary additions indicating the outcomes of different types of police identification lineups. These changes are needed to prevent, or at least reduce, the risk of wrongful convictions.

# Drawing as a memory aide

The creation of a drawing may be a suitable method for “externalizing mental representations in graphical form.”[[17]](#footnote-17) Drawing can encourage visual analysis and help establish concentration. In a 2015 free-recall study, Wammes et al. showed that drawing an image of a word’s meaning rather than writing the word itself produced better recall among adults. They suggested that the mechanism driving this effect is the integration of a combination of memory codes when drawing: elaboration, visual imagery, motor action, and picture memory.[[18]](#footnote-18) Drawing is also known to support a range of representational goals ranging from observational rendering to the production of highly schematic diagrams to support abstract reasoning,[[19]](#footnote-19) and can be described as a means through which thought can be made tangible. In a study of both young people and older adults, Meade et al. showed that drawing can lead to better memory recall compared to other study techniques, including writing, because it incorporates multiple ways of representing the information: visual, spatial, verbal, semantic, and motoric.[[20]](#footnote-20)

Based on these findings, we hypothesize that, when used as a tool in eyewitness identification, drawing could be used to enhance memory and recall. In a pilot study conducted at Central Saint Martins University of the Arts (CSM) in London[[21]](#footnote-21) examining whether drawing as an innate human ability can be used to focus memory and improve recall, Michelle Salamon made important findings regarding the links between figure drawing and memory improvement. Salamon showed that the motor actions involved in drawing improved the ability of participants to retrieve and clarify details of a visual experience stored in their memories (including long-term memory). Arguably, drawing plays a valuable role in capturing and refining visual experience, rendering it concrete and substantive.

 Further, a 2019 United Kingdom Parliamentary research briefing noted that vulnerable witnesses, for example, children with autism, older adults, or people with neurodiversity, may find standard procedures for gathering witness statements intimidating. The briefing advises adaptations to mitigate this, such as allowing witnesses to draw events as well as or instead of describing them during investigative interviews, to help reduce memory contamination.[[22]](#footnote-22)

# Aims

In view of the need for a comprehensive reform of Israeli law concerning eyewitness identification evidence, and drawing on research on how human memory can be improved and refined through drawing, we have undertaken a collaboration with the UK’s Drawing Lab to develop drawing into a tool that can be used for a social purpose. This collaboration enables an interdisciplinary initiative between criminal law and art to investigate whether drawing can be used as a tool to enhance the recall abilities of eyewitnesses, to help address the problem of eyewitness misidentification and wrongful convictions. The aim of this project is to develop a pilot study design that can be implemented nationally and globally. This is based on pilots conducted at CSM and involves collaborators from Kings College London (KCL) and the University of Haifa in Israel.

We propose a comprehensive larger scale study that examines whether drawing can be used as a tool to improve the accuracy and the collection of eyewitness identification evidence in Israeli criminal investigations. The results of the study could help improve legal policy regarding eyewitness identifications and the conduct of police lineups. The study will involve a collaboration between Dr. Hannah Quirk from KCL, Michelle Salamon from CSM, and Prof. Doron Menashe and myself from the University of Haifa. It will comprise a set of multi-participant experiments conducted simultaneously in Israel and the United Kingdom. As preparatory research prior to conducting the large-scale study, we carried out four pilot experiments in London and Florence. The aim was to field-test the study design to optimize and refine it before implementing it in the large-scale study, and explore any preliminary trends that emerged from the results.

# Significance and future applications of the research

If our hypothesis is confirmed, and if the findings of our large-scale study corroborate those of Salamon—that is, that the motor activity of drawing on paper, without any prerequisite for artistic skill, increases an eyewitness’s ability to recall details of a perpetrator following a criminal incident—we will be able to offer police investigators a novel, simple, and accessible tool, whereby eyewitnesses produce a sketch of what they saw to help them optimize their recall of a suspect’s facial features. Furthermore, this study will address the recommendations made by the Danziger Commission and myself regarding the need for investigative teams to consider the systemic variables under their control that may directly affect the reliability of police lineups, with a view to reducing rates of eyewitness misidentification.

# The pilot studies

## Study design

We carried out two pilot studies in London in September 2023 at KCL and CSM and a further two at the University of Florence in April 2024. After briefly reviewing the London pilots, this article focuses on the Florence pilot studies. The study design used in both sets of pilots was broadly similar. Participants were invited to a workshop on eyewitness identification. During the workshops, a staged incident occurred, where an individual interrupted the workshop. Participants were not warned about the interruption in advance. At the end of the workshop, participants were divided into two groups: a drawing group a and non-drawing group. Drawing groups were asked to draw the individual who interrupted the workshop and then to identify the individual in a photo identification lineup. Non-drawing groups were just asked to identify the individual in a photo identification lineup. In the Florence pilot, all participants were graduate students of law and were allocated into drawing groups and the non-drawing groups according to the side of the classroom they were seated on (left or right). In both London pilots, there were two groups of arts students: one from KCL and one from CSM. Participants were allocated to drawing and non-drawing groups after they had chosen their seats in the classroom by having alternate participants receive a drawing group or a non-drawing group form.

# The London pilot studies

The data from the pilot studies conducted at KCL and CSM in London are provided below.

Table 1: Results of CSM pilot study

|  |  |  |
| --- | --- | --- |
|  | Positive ID  | No Positive ID |
| Drawing Group | 7 |  |
| Non-Drawing Group | 5 |  |

N=39, p=0.73

The CSM pilot was conducted on September 19, 2023. The pilot consisted of 39 participants. Overall, 12 made a positive identification of the “suspect.” The drawing group had slightly better recall, with 7 positive identifications compared to 5 in the non-drawing group. This amounts to a 5.12 % better rate of positive identification for the drawing group.

Table 2: Results of KCL Pilot Study

|  |  |  |
| --- | --- | --- |
|  | Positive ID  | No Positive ID |
| Drawing Group |  |  |
| Non-Drawing Group |  |  |

N=34, p=(ADD)

In the KCL pilot study on September 20, 2023, there were 34 participants of whom 20 successfully identified the “suspect.” These correct identifications were spread equally among both drawing and non-drawing groups.

The drawings created by the drawing groups, in particular, provided insights into the sample groups. It is plausible that the participants from CSM, as art students, might have had an advantage in terms of drawing ability and experience. However, in practice, the percentages of accuracy in identification were very similar, with the art students from CSM not performing significantly better than law students from KCL. For example, the CSM drawing group participants, who, as arts students, may have been more experienced with drawing, had a better rate of positive identification. This suggests a bias in favor of drawing as an effective trigger for recall. The KCL pilot, in which participants were all law undergraduates, were given the same instructions as those in the CSM pilot but had an equal rate of positive and negative identifications. Several participants in the KCL pilot embellished their drawings with handwritten notes. This might indicate a forensic mindset or an attempt to find a way to communicate additional information. Alternatively, this could suggest that they were not confident that their drawings had depicted the suspect accurately. These results encouraged us to conduct additional pilot studies to improve our research methods, including reducing any potential biases between the two groups.

# The pilot studies conducted at the University of Florence

|  |  |  |
| --- | --- | --- |
| TOTAL UoF Participants | 48 |   |
| SUCCESSFUL ID | 37 | 77.00% |
| DRAWING | 14 | 29.16% |
| NON DRAWING | 23 | 47.90% |
| NON ID | 8 | 16.60% |
| INCORRECT | 3 | 6.25% |

# The two Florence pilot studies were organized by the Dean of the Faculty of Law at the University of Florence, Prof. Allesandro Simoni and his assistant, doctoral student Costana De Caro. We recruited a total of 48 English-speaking law students to participate in what they were told were workshops on eyewitness identification. Our aim was to gather a reliable and large dataset (n=48) of participants to demonstrate whether the physical act of drawing improves memory recall for facial recognition to improve positive rates of eyewitness identification. The format of the pilot workshops was designed to be clear and simple to run. It was supported by a package that included a participant questionnaire, instruction set, drawing materials, data-gathering sheets, and a photo identification lineup.

There was no prerequisite for participants to know how to draw or to regularly practice drawing. The 48 students were divided into two cohorts, one of 20 and one of 28 participants. The first cohort (n=20) was allocated to a morning workshop on April 4, 2024 and the second cohort (n=28) to an afternoon workshop on the same day. Each workshop was identical and consisted of a lecture given by this author on eyewitness identification.

The study began with the participants seated facing a screen at the front left of the classroom. I presented an eyewitness identification workshop. After an hour, an unknown female (the “suspect”) burst into the classroom and disrupted the session as the participants were focused on the screen. Participants were not warned beforehand that this disruption would occur. After entering the classroom, the “suspect” stood on the left-hand side of the podium and asked me to sign a piece of paper that she was holding. Before the session, the authors had mapped out and rehearsed a prearranged route for the “suspect” to enter and exit without being visible to any of the “eyewitnesses.” After the staged incident, participants were informed that the interruption was part of a research project, and that further participation required their signed consent. Participants were then asked to participate in a photo lineup to identify the individual who had interrupted the workshop. Participants were divided into two equal groups – Group 1 (the drawing group) and Group 2 (the non-drawing (control) group) – based on where they were seated in the classroom. Those seated on the right were allocated to Group 1 and were asked to sketch in pencil on paper the individual they had seen interrupt the workshop. They were then asked to participate in the photo lineup. Those seated on the left were allocated to Group 2 and asked to participate in the photo lineup without being asked to sketch the individual they had seen.

## Group 1 – Drawing Group

Participants who had been seated on the right-hand side of the classroom (Group 1) were asked to recall the “suspect” they had seen and then to sketch her using pencil on paper. They were then asked to formally identify the “suspect” by participating in a photo identification lineup comprising 8 photographs, each of a similar-looking individual, one of which was the “suspect.” Participants were given a pencil and sheet of A4 paper on a clipboard and asked to sketch what they recollected of the person they had seen. They were informed that the drawing itself would not form part of the identification. After 4 minutes of drawing, participants were asked to review a photo identification lineup of 8 mugshots, which they were informed may or may not include the “suspect.” They were given a datasheet with a series of questions relating to the identity of the “suspect.”

## Group 2 – Control Group

Directly following the staged interruption, the participants seated on the left-hand side of the classroom (Group 2) were asked to participate in a review of a photo identification lineup. The group was given 4 minutes to recall the “suspect” without drawing her. They were asked to review a photo lineup of 8 mugshots, each of a similar-looking individual. The participants were informed that the lineup may or may not include the “suspect” (in reality, one of the photographs was indeed of the “suspect”). They were given a data sheet with a series of questions relating to the identity of the “suspect.” Both Group 1 and Group 2 were provided with the same photo lineups and data sheets.

## Data collection

Information about the study and consent forms were presented to participants using Mentimeter, an interactive online app that provides information about the study and contact details of the research team in case any participants needed further clarification.[[23]](#footnote-23) Written forms were used to capture personal data and details about the participants, including gender and ethnic origin. Two separate forms were used to gather data about the participants and to standardize data structure and format: *Sheet 1 For Drawing Participants* and *Sheet 2 For Non-Drawing Participants*.

Following the pilot studies, the forms were prepared for analysis by removing any duplicates or anomalous forms and reconciling any inconsistencies. The forms were analyzed and visualized using Microsoft Excel. We used data visualization to help transform data into an easy-to-understand graphic format.

# Results from the Florence pilot studies

The results from the two pilot studies in Florence are shown in the tables below. “Positive ID” means that the participants correctly identified the “suspect” in the photo lineup; “No Positive ID” means that the participants failed to correctly identify the “suspect” in the photo lineup.

**Table 3: Results for Group 1**

|  |  |  |
| --- | --- | --- |
|  | Positive ID  | No Positive ID |
| Drawing Group | 4 | 5 |
| Non-Drawing Group | 10 | 1 |

N=20, p=ADD
Table 3 shows the results of the first Florence pilot study. In the drawing group, 4 out of 9 participants made a positive identification of the “suspect.” In the non-drawing group, 10 out of 11 participants made a positive identification of the “suspect.”

**Table 4: Results for Group 2**

|  |  |  |
| --- | --- | --- |
|  | Positive ID  | No Positive ID |
| Drawing Group | 9 | 5 |
| Non-Drawing Group | 14 | 0 |

N=28 p=ADD
Table 4 shows the results of the second pilot study. In the drawing group, 9 out of 14 participants made a positive identification. In the non-drawing group, 14 out of 14 participants made a positive identification.

These findings show that contrary to our hypothesis (and the tendency of the findings from the London pilot studies), more participants in the non-drawing groups successfully made a positive identification of the suspect—50% accuracy compared to 27% accuracy across both drawing groups.

For the Florence Group 1 pilot, 91% (10/11) of participants in the non-drawing group accurately identified the “suspect” compared to 100% (14/14) in the Group 2 pilot. While just 44% (4/9) of participants in the Group 1 drawing group made a positive identification, 64% (9/14) of the participants in the Group 2 drawing group made a positive identification. Thus, the morning non-drawing group was 47% more accurate in identifying the “suspect” than the morning drawing group, and the afternoon non-drawing group was 36% more accurate than the afternoon drawing group. Overall, across both groups, the non-drawing participants were 40% more accurate in identifying the suspect than the drawing participants.

* The confidence interval of correct identifications was 30–100%.
* The majority of participants made successful identifications.
* Three participants made incorrect identifications.
* Eight participants reported that they were unable to identify the suspect.

# Conclusions—insights and areas to improve and develop

The organization of the pilot studies, including the recruitment of a ~~large group~~ of English-speaking graduate law students in Florence was effective. Inviting a wide cross-section of law graduates to the sessions resulted in the participation of graduates from diverse fields of law (such as commercial, international, or criminal law). The Florence graduate law students expressed surprise at being asked to draw but cooperated well, following the instructions they were given.

However, the pilot studies conducted in Florence did not confirm our hypothesis. We must pay close attention to this in order to draw accurate conclusions, gain insights, and improve our research methods and study design. This will help us avoid biases. As shown in the literature, to conduct an effective (and admissible) police lineup, investigators should avoid presenting eyewitnesses with a suspect who stands out against the other members of the lineup. For example, investigators should not place a young male suspect in the same lineup with seven visibly older males. When analyzing the outcomes of the Florence pilot studies, we noticed that the “suspect’s” face appeared slightly brighter in the photo identification lineup than the photographs of other members of the lineup, and we considered whether that might have biased successful identification rates. Even so, that would not explain the differences in the identification rates between the two groups, and the greater success rate among the non-drawing groups compared to the drawing groups.

Furthermore, when setting up the room in which the pilot studies are conducted, all participants must have a good line of sight towards the “suspect,” to ensure they all have the potential to successfully identify him or her in the photo lineup. It is possible that the room layout may have had some influence on the outcomes, since the tables on the right-hand side in the rooms occupied by the drawing groups in both the morning and afternoon pilots did not have a clear line of sight to the “suspect.” The screen/projector used in both rooms, on which the participants were focused during my lectures in the workshops at the time when the “suspect” entered the room, was located on the left-hand side in both rooms.

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Additionally, we considered whether we had given the drawing groups too much time (4 minutes) to draw. This may have influenced the participants in the drawing group to spend more time drawing what they recalled of the suspect, rather than attempting to identify the photo of the “suspect” in the photo lineup. In the Florence pilots, participants were separated into drawing/non-drawing groups quasi-randomly according to which side of the classroom they chose to sit on. In the London pilots, participants were separated into drawing/non-drawing groups quasi-randomly by allowing them to choose their seats in the classroom and then allocating them alternately into either the drawing or non-drawing group. The different methods of allocating participants into the drawing/non-drawing groups in each pilot into separate groups may also have influenced the results.

We seek to continue to test our initial hypothesis—that the motor activity of drawing on paper, without any prerequisite for artistic skill, increases an eyewitness’s ability to recall details of a perpetrator fixed in their memory following a criminal incident. Demonstrating the validity of this hypothesis could help us develop a simple and accessible tool for police investigators where eyewitnesses draw what they saw to help them best recall a suspect’s facial features.

The insights that we gained from our Florence pilot studies sharpened our understanding of the various factors that could bias memory and affect the ability of eyewitnesses to accurately identify a suspect. Given the relatively limited number of participants in the pilots and following our consideration of the factors that could have, and did, influence the results, we decided to conduct additional pilots prior to the proposed large-scale study.

We have made several changes to the protocol for the additional pilot studies. Regarding the photo lineup order, although in our view this did not influence the outcome of the pilots, all the individuals whose photographs are included in the photo lineup will be photographed with the same camera and in the same lighting so that no one image is brighter or stands out in relation to the others. Each pilot will be conducted under identical conditions. All participants should have an equal and optimal line of sight to the “suspect” when he or she enters the classroom and stands next to the lecturer in the middle of the class. The time granted to the drawing group to sketch the “suspect” will be shortened. It will be made clear to participants in the drawing group that the exercise does not evaluate their artistic ability but is an attempt to draw the “suspect’s” face from memory. Rather than allocating participants into a “drawing group” and a “non-drawing group” at the start of the session, participants will be allowed to choose their own seats in the classroom and later allocated into the two groups quasi-randomly such that alternate students are allocated into each group.

We believe that our proposed large-scale interdisciplinary study, which will be conducted in two countries simultaneously, and which combines two different disciplines (that share the common challenge of finding ways to improve human recall) will improve criminal law policy. Policy reforms will be better, more effective, and fairer if they are based on knowledge that draws from several disciplines, rather than if they are determined in a manner that is disconnected from other, even unrelated, disciplines and fields.

It is apparent that, if the scientific validity of substantial, large-scale studies such as the one proposed here is strong, then it is appropriate to use their findings to inform relevant policy developments, cross-pollinating from one discipline to another to enhance each field. This is based on the assumption that human psychological and functional processes, in particular those related to memory, are so innate that they operate similarly in the majority of people.

 We anticipate that the insights we have gained from the pilot studies reported here will help us improve our next-step pilot studies. Based on the results of these next-step pilot studies, we intend to design and conduct a largescale study. It is hoped that the findings of such a largescale study might contribute to knowledge that will help policymakers and law enforcement officials develop tools and policies that will improve eyewitness identification and reduce wrongful convictions.

# Appendix

**Mentimeter Site**

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14. Rather than saying “I have identified” in the body text, it is better to cite here where you identified them. [↑](#footnote-ref-14)
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