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

ממצאי מיני-מחקרים שנערכו באוניברסיטת פירנצה

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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 on the one hand and art, particularly drawing, on the other—is human memory. Thus, criminal law can and will benefit if it incorporates insights drawn from scientific research in the field of art. These insights can be used to improve police investigations involving eyewitnesses around the world, increase the quality of witness identifications, and reduce the rate of mistaken identifications, thereby reducing the number of wrongful convictions.

**Eyewitness Testimony**

With regard to the legal field, there is almost unanimous agreement, particularly in the United States and Canada, that mistaken identification is the most common cause of miscarriages of justice and is the primary cause of wrongful convictions.

My doctoral dissertation[[1]](#footnote-1) contended that it is not possible to accept a situation in which a criminal conviction can rely upon a single piece of evidence that is so unsound[[2]](#footnote-2).

 There are defects both with respect to the inadequacies of human perception and memory, and in the functioning of the various investigatory units with regard to obtaining identification evidence. At times these units work without adequate supervision and oversight and there are no binding rules set forth in legislation to guide them. It is not surprising; therefore, that this situation leads to an unacceptable number of cases in which an individual is convicted of a criminal offense and only through forensic examinations at a later stage is he proven innocent. In my dissertation, I provided a basis for the assertion that the time is ripe to engage in a comprehensive reform of **Israeli law** relating to conviction of a defendant based on a single piece of identification evidence. I propose a model for structuring a new approach to identification evidence, including an amendment to the law and implementation of a requirement for an evidentiary supplement that is contained in a proposed bill for “**Conducting Lineups, 2016**,” which was formulated for this purpose and which was presented at the end of the thesis. This model is in effect a code, a comprehensive legislative enactment, that regulates all of the various aspects of the lineup in criminal law and which is based on four principal layers: (1) a comparison and confrontation between the underlying legal presumptions and the underlying psychological scientific presumptions regarding identification evidence (2) the requirement for additional evidence in Israeli law, (analogous to the requirement for “additional scintilla of evidence,” to convict on the basis of a defendant’s confession given outside of court) (3) the court’s invalidating rule as set forth in the **Yissacharov** case[[3]](#footnote-3); (4) English law.

Prior to setting forth the proposed model, I dealt In my dissertation with the difficulty inherent in the interface between Israeli law and identification evidence .As shown, This difficulty is multi-faceted. It stems, first and foremost, from the fact that although identification evidence is evidence of an inherently problematic nature, (difficulty evaluating its trustworthiness; susceptibility to many biases liable to influence the identifying witness and to lead him to make a mistaken identification; and great risk of wrongful convictions arising from this evidence) the Israeli case law has failed to establish a requirement for supplementary evidence as a condition for conviction based upon this single evidence.

Conclusive proof of the great risk involved in convicting a defendant on the basis of a single piece of identification evidence is provided by findings from **the *Innocence Project***,[[4]](#footnote-4) the initiative of two scholars, Barry Scheck and Peter Neufeld, of Cardozo School of Law, Yeshiva University. These findings demonstrate that 76% of wrongful convictions—where the defendants were later exonerated through the work of the Innocence Project in the wake of DNA examinations—have been based (at least in part) on mistaken frontal identification by eyewitnesses or victims of the crime. Such mistaken identifications occurred sometimes as a result of inherent biases and weaknesses of human memory and sometimes as a result of defects in the conduct of the identification process by the investigatory unit. In other words, 76% of all convictions proven wrongful relied, at least to some extent, upon identification evidence

In Israel, the only thing that exists with respect to identification evidence is case law. A well thought out and comprehensive doctrine of identification evidence has yet to be created. Moreover, an examination of the rules demonstrates that they are often unable to provide the defendant with appropriate protection against wrongful conviction and many of the rules are inconsistent with scientific research in the field of human memory and cognitive psychology.

Indeed, alongside the case law, the Israel Police has made an effort to formulate the rules for holding a lineup, and they are included in the internal guidelines of the Investigations and Intelligence Branch. However, these guidelines do not have normative binding force, and when violated entail no sanction of a punitive or evidentiary nature whatsoever. Furthermore, many of the guidelines are drafted solely as recommendations. Moreover, as with the case law, a careful analysis of the internal guidelines shows that some of them are not consistent with scientific research and at times even clearly contradict it.

This lack of a well-regulated body of law with respect to identification evidence, including the absence of rules set forth in legislation, has a clear impact at all levels of this issue.

An additional aspect of the problems existing in the interface between the Israeli law and the identification evidence is expressed in the fact, that the case law has yet to set forth a clear and well-regulated evidentiary ranking of various kinds of lineups. This is particularly incomprehensible, in view of the findings from many scientific studies in the field which demonstrate different evidentiary weights for different types of lineups.

Moreover, Israeli law, generally speaking, does not sufficiently recognize the problematic and complex characteristics of the issue of identification and is therefore insufficiently equipped to grant defendants the protection necessary from wrongful convictions. For example, it would seem that up to now both the judiciary and the legislature have failed to understand the anomalies of identification evidence, anomalies that are expressed, *inter alia*, in the one-time nature of this evidence. As discussed extensively in my doctoral dissertation, normally the investigatory unit has only one opportunity to obtain such evidence, with no possibility of “improving” or “amending” it later. For the defendant it is difficult, and indeed almost impossible, to refute such evidence after it has been obtained. Granting this, there is great importance in being scrupulous with respect to the rules that are intended to ensure the propriety of the lineup. However, because the courts and the legislature have not internalized that what is involved is an unusual and “one-time” piece of evidence, one will search in vain in the legislation or regulations for any binding rules regarding the manner of obtaining identification evidence or a well-regulated doctrine in the case law.

Lately, moderate yet significant changes have taken place in the Israeli law relating to evidence as the Justice Minister has appointed a public committee chaired by (retired) Supreme Court Justice Yoram Danziger to examine and correct false convictions.

The first topic chosen by the committee is the failure to identify. Recently (on September 2, 2019) the Commission published its interim report[[5]](#footnote-5), in which most of my suggestions on my doctoral dissertation were integrated regarding necessary changes in police work and the need to change police internal procedures. While the Commission has not yet accepted in my final proposal to regulate the issue of identification in primary legislation, it is also clear that its recommendations in the interim report are an important step toward changing and correcting potential false convictions as a result of the courts' practice of single-identification evidence.

(להוסיף כי נפלה בידי הזכות להופיע כמומחית לראיית הזיהוי בפני הועדה)

A preliminary review of the Danziger Commission's interim report indicates that—after conducting many sessions in which it heard from renowned experts on eyewitness testimony and identification evidence and from representatives of the Israel Police who routinely handle such testimonies and evidence—the Commission found that identification evidence should be rgarded with extreme caution and granted little weight. The Commission further found that a defendant should not be convicted solely on the basis of a single identification, and that mugshot identification should only be granted the weight of supplementary evidence.

In addition, the preliminary review of the Commission's report indicates that the Commission concluded that the time is ripe for change in all aspects of the approach to identification evidence. Its conclusion was based in part also on the insights of my doctoral dissertation and from the dramatic data I referred to in my study that was presented as part of **the Innocence Project** in the United States, and the insights in **Simon’s** inspirational book ***In Doubt: The Psychology of the Criminal Justice Process*** [[6]](#footnote-6).

The Commission found that the investigatory unit should be instructed to give utmost consideration to **extra-systemic variables** beyond its control regarding the inherent difficulties in the manner in which investigators are often influenced by biases and trapped by mistaken conceptions with regard the identification evidence primarily on matters relating to the decision regarding the type of lineup used, the manner in which it is conducted, and the behavior of those conducting the lineup at the time**.**

Variables to which I referred to in my research, and which could potentially reduce the evidentiary value of identification evidence, including: the criminal incident itself; the characteristics of the identifying witness; the length of exposure to the event; the distance between the identifying witness and the suspect; the level of lighting during the event; cultural-social characteristics; the age of the identifying witness and the like.

In the spirit of the aforementioned, the Commission found In addition that the investigatory unit should be instructed to give utmost consideration to the **systemic variables** within its own control, to which I referred to in my research, and which could potentially reduce the evidentiary value of identification evidence, including: the type of lineup that the investigatory unit uses; the awareness of the policeman in charge of conducting the lineup as to the identity of the suspect and his/her placement in the lineup; whether the policeman in charge has given instructions or warnings to the identifying witness (prior to the lineup and during the course of it) the significance of feedback given to the identifying witness (prior, during or after); the number of people, suspects, and identifying witnesses taking part in the lineup; documentation of the lineup by the investigatory unit; the level of confidence the identifying witness expresses and how it is documented by the investigatory unit. Among the many resulting recommendations is to conduct lineups as soon as possible after the occurrence of 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 identifying witness, and to require the investigatory unit to include these systemic variables in its report of the lineup.

One of the Commission's significant recommendations in this context is not to rely solely on a single piece of identification evidence obtained by reviewing a mugshot album.

Thus, we can see that 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 identification evidence alone. That this recognition has penetrated Israeli law can be seen in the Danziger Commission’s recommendations and in my comprehensive study. Both call for changes in the way that lineups are carried out and suggest that the law be amended to

require that a conviction be based on a model involving evidentiary additions indicating the outcomes of different types of lineups. These changes are needed to prevent, or at least reduce, the risk of wrongful convictions.

**Drawing**

The creation of a drawing may be viewed as a suitable method for “externalizing mental representations in graphical form” (Fan, Yamins and Turk‐browne, 2018)להוסיף הערת שוליים

Drawing is known to encourage visual analysis and help establish concentration. The act of creating a drawing uses a combination of skills: elaboration, visual imagery, motor action and picture memory. “In the case of its use as a tool infirst person witness statements all of these mechanisms can be used to enhance memory and recall performance" (Wammes, Meade and Fernandes, 2016).להוסיף הערת שוליים

Drawing is also known to support a range of representational goals ranging from observational rendering to production of highly schematic diagrams to support abstract reasoning (Bauer and Johnson-Laird, )להוסיף הערת שוליים and can be described as a means through which thought can be made tangible.

Research demonstrates that drawing led to better memory recall when compared with other study techniques because it incorporated multiple ways of representing the information -- visual, spatial, verbal, semantic and motoric. (*Drawing is better than writing for memory retention.* )להוסיף הערת שוליים

Furthermore, In addition to the recommendations made by the Danziger Commission in Israel and by me on my doctoral dissertation, significant insights on the reliability of human memory have emerged in the United Kingdom from research in the field of art.

In a study conducted at Central Saint Martins in London,[[7]](#footnote-7) Michelle Salamon made important findings regarding the links between (figure) drawing and memory improvement. In her paper, Salamon explains that initial interest in the relationship between drawing and memory stemmed from a booklet originally published in 1848, on *The Training of the Memory in Art* by Horace Lecoq de Boisbaudran, a nineteenth century art professor who developed techniques for teaching drawing through memory. These techniques provided a springboard for this pilot project, which explored how the creation of drawn images can express and document the act of remembering. It examined whether drawing as an innate human ability can be employed as a means for focusing memory in order to improve recall. The project informally piloted a space where drawing extended beyond traditional expectations and was used as a research tool for developing thinking, improving concentration and enhancing memory. The workshops aimed to identify a series of mnemonic devices to record and recall information from episodic memory and use them to develop a tool for use in art and design learning environments

The purpose of the research project was to construct a case for recognition of the value of drawing as a learning tool, while ensuring that the learner’s experience fostered critical reflectivity. The relationship between observation and movement in drawing led this project to consider whether the physicality of drawing, as sensory information, might serve as an efficient mnemonic tool.

As part of her study, Salamon recruited approximately 20 students to participate in five weekly sessions of around three hours each, which took place between May and June of the 2015. Each session focused on personal drawing assignments that the students were given. There was no prerequisite for the students taking part in the study to have any artistic ability or talent for drawing.

The aim of the study was to examine whether the motor activity involved in drawing (sketching on paper) could improve memory by encouraging the semantic, visual, and motor aspects of memory.

During the fourth session, participants were asked to recall childhood memories about their first pair of shoes. The participants reported that when they were asked to draw the shoes from memory, they were able to progressively recall additional information about them. The motor action of grasping the pencil and drawing on paper enhanced their ability to retrieve details about their childhood from their memory, and this helped them construct a coherent, clear memory about the shoes.

Salamon’s study showed that the motor actions involved in drawing (without any prerequisite for any creative or artistic skills for this purpose) improved the ability of participants to retrieve details stored in their memories (including the long-term memory), and to sharpen and refine these to the point of clarifying or honing a visual experience stored in the memory, rendering it more concrete and precise. Moreover, as Salamon’s study showed, the potential uses for drawing as a tool for enhancing or honing memory are varied and cross- disciplinary. In conclusion the Drawing Lab article suggests that drawing can play a valuable role in encoding and distilling visual experience and transforming it into a concrete and substantive form.

 Furthermore, A 2019 Parliamentary report in the U.K observed that vulnerable witnesses, for example children with autism, older adults or people with neurodiversity, may find standard procedures for gathering witness statements intimidating and advises adaptations to reduce intimidation such as “Allowing witnesses to draw events (sketching) as well as or instead of, describing them during investigative interviews can help reduce memory contamination and is less time consuming and demanding” ('Improving Eyewitness Testimony', 2019) (להוסיף הערת שוליים)

**The aim of the Research**

Given the need for a comprehensive reform of Israeli law involving identification evidence, and drawing on significant new data on how human memory can be improved and refined through the simple motor action of drawing on paper, we have extended in our research the Drawing Lab into a tool that can be used for a social purpose, where the attributes of drawing can be used as a tool for bettering social influence. A collaboration with Drawing Lab and legal research presents a cross disciplinary incentive between criminal law and communication, to investigate whether drawing

 can be used as a tool to enhance the recall abilities of first-person witnesses in order to bring offenders to trial and to prevent mistaken identifications and false convictions as much as possible.

Therefore, in light of the fallibility of human memory, a phenomenon recognized in both art and law, and given the insights emerging from Salamon’s work, we propose a comprehensive study that combines these two very disparate disciplines with a view to improving legal policy regarding identifications and the conduct of lineups.

Our large scale study, that aims to examine ways to improve the accuracy and the collection of identification evidence in Israeli criminal investigations, is a collaboration between Dr Hannah Quirk from King's college (KCL) and Michelle Salamon from Central Saint Martins (CSM) in the United Kingdom and prof. Doron Menashe (and myself) behalf of the University of Haifa in Israel and consists of multi-participant experiments conducted simultaneously in both countries.

Therefore, and before conducting our large scale study we initially conducted four interdisciplinary pilot studies in London and Florence.

למעשה, מטרת המיני מחקרים שנערכו בלונדון ובפירנצה נועדה לבחון עובר לעריכת המחקר רחב ההיקף עצמו את שיטות עריכת המחקר הראויות, לבחון האם ניתן לטייב את שיטות הפעולה שבהן נקטנו ובד בבד לבחון מגמות בשאלת המחקר הנבחנת.

And will be emphasized, If our research hypothesis will be confirmed, and if the findings of our large-scale study corroborate those of Salamon—that the motor activity of drawing on paper, without any prerequisite for artistic skill, increases a witness’s ability to recall details of a perpetrator fixed in their memory following a criminal incident—we will be able to provide police investigators all around the world (and not just in Israel) a new simple and accessible tool of having eyewitnesses draw what they saw to help them best recall a suspect’s facial features.

Furthermore, this study will address the recommendation of the Danziger Commission and of my doctoral dissertation that investigative teams give their opinion on the systemic variables under their control, which may directly affect the reliability of lineups and subsequently reduce rates of witness misidentification.

**המיני מחקרים שנערכו באוניברסיטת פירנצה**

Continuance to the two pilot studies initially carried out in London in September 2023, we conducted two more pilot studies in Florence university in April 2024. This article focuses on the pilot studies we have conducted in Florence. I will comment that generally the methods that we used in our pilot studies both in London and in Florence were similar except this time the participants were all graduate law students and the identity of the actor that entered and engaged in an interruption of the workshop was changed (to Hannah) and accordingly her picture in the photo line –up was changed as well) . Also this time the drawing groups and the non drawing groups set on different sides of the classrooms בעוד שבלונדון כולם ישבו יחד כשכל אחד מהסטודנטים קיבל לידיו טופס אחר למיליו (הסטודנט הראשון קיבל טופס "מאייר" והסטודנט שלידו קיבל טופס "לא מאייר" וכך לסירוגין).

On the two pilot studies that we have conducted in Florence, organized in advance by the dean of the faculty of law in Florence university prof. Allesandro Simoni and his assistant (הדוקטורנטית) Costana De Caro, we invited two groups of volunteer speaking English students to participate in two separated identification work shops

During each one of the workshops, the students were asked to participate in an activity where they act as “witnesses” to a staged incident intervention.

And will be emphasized, It was not necessary that the participants knew how to draw or to be a regular drawer to take part in the Pilot studies. Immediately following the “staged” intervention, participants were randomly allocated to Group 1 or Group 2.

The intention was to gather a reliable, large data set (close to 50 participants) from a large range of witnesses to demonstrate whether the physical act of drawing can be used to improve memory recall for facial recognition in first person witnessed events. The Template provided a broad ranging sample in terms of age, experience, skills, and was designed to be clear and simple to run, supported by a package to include participant questionnaire, instruction set, drawing materials, data gathering sheets, photo line up, ext.

## **The Incident**

 The first pilot study in Florence university took place on the 04/4/2024 at 10:00 am and the group consisted 20 students whereas the second pilot study took place at the 04/04/2024 at 03:00 pm and consisted 28 participants.

The incident began with the student participants seated facing a screen/projector at front of class (located at the left side of the room) . After an hour passed in the session of the identification work shop that I conducted, an actor entered and engages in an interruption, during a segment of the session when participants were focused on the screen/projector.

 The "suspect" (Hannah) burst into the classroom, stood on the left side of the stage, approached me while holding a piece of paper and asked me to sign it.

It would be mentioned that in advance we rehearsed an escape route for the “Suspect” so she can enter and leave the area without being visible to “witnesses” before and after the incident has taken place.

Following the incident there was an announcement that this interruption forms part of a Research Project and further participation requires signed permission from students.

Students were separated into two groups: Group 1 – Drawing Group and Group 2 – Non Drawing (control) Group. They were asked not to discuss the incident, this is important as discussion may affect the reliability of the witness identification.

**Group 1 - Drawing Group**

Participants that were sitting on the right side of the classroom (group 1) were asked to recall the suspect they saw, then to sketch the suspect using pencil on paper. They were asked to formally identify the suspect by participating in a photo line-up comprising eight photographs, each of a similar-looking individual, including the “suspect “.

They were given a pencil and sheet of A4 on a clip board and asked to draw their recollection of the person they saw. They were informed the drawing itself will not form part of the identification. After 4 mins drawing, they were asked to review a photo line-up of 8 “Mugshots” which “may or may not include the suspect. They were given a data sheet with a series of questions relating to the identity of the suspect.

**Group 2** **- Control Group**

Directly following the “staged” intervention participants that were sitting on the left side of the classroom (group 2) were asked to participate in a review of a photo line-up comprising eight photographs, each of a similar-looking individual, including the “suspect”. The group was given 4 minutes to recall the suspect without drawing.

They were asked to review a photo line-up of 8 “Mugshots” which “may or may not include the suspect. They were given a data sheet with a series of questions relating to the identity of the suspect.

The information for participants and consent forms for the Pilot study was presented to students using Mentimeter which is an interactive online app used to disseminate information and to share the details of the research team if any participants needed further clarification. Written forms were used to capture identification data and details about the participants including gender and ethnicity.

To gather data from participants two separate forms were designed to gather raw data and standardize data structure and format. *Sheet 1 For Drawing Participants* OR *Sheet 2 For Non-Drawing Participants*.

Following the Pilot Studies, the data forms were prepared for analysis by removing any duplicates or anomalous forms and reconciling any inconsistencies.

Forms were analyzed and visualized using Microsoft Excel to find trends, correlations, outliers, and variations that begin to tell the story. We discovered patterns and used data visualization to help transform data into an easy-to-understand graphical format.

 **Summary of data gathering from London pilot studies**

In short, it will be mentioned, that the data from our pilot studies in London indicated that in the CSM session, that took place on the 19/9/2023 with a total group of 39 students of whom 12 made a correct identification, the drawing group had better recall with 7 correct identifications compared to 5 in the non-drawing group. This represents a 5.12% bias in favor of drawing as an effective trigger for recall.

In the KCL pilot study that took place on the 20/09/2023 out of 34 participants 20 of whom successfully identified the suspect, the correct identifications were equal in both drawing and non-drawing groups.

It was especially of interest to analyze the drawings created by the drawing groups, these provided insights into the sample groups. For example, the CSM Drawing Group students, who may be said to be more familiar with the act of drawing as part of their practice, as mentioned, had a better rate of positive identification. This suggests a bias in favor of drawing as an effective trigger for recall. The KCL groups consisting of Law Undergraduates were given the same instructions as CSM but had an equal rate of positive and negative identifications. A number of them embellished their drawings with handwritten notes. This might be viewed as indicative of a forensic mindset or suggest they were driven to find a means to further communicate information. Those insights encouraged us to conduct some more pilot studies to improve our study methods and to make an effort to avoid any biases between the two groups.

**Summary of data gathering from Florence pilot studies**

As mentioned before, and in order to reduce biases the pilot studies in Florence were conducted with two groups of graduate law students.

 **The results of analysis were as following:**

**The 10 am group 1** - consisted 20 students

 The Drawing group: 4/9 executed positive identification

The Non Drawing group: 10/11 executed positive identification

 **The 3:00 pm group 2**- consisted 28 students

 the Drawing group: 9/14 executed positive identification

 The Non Drawing group: 14/14 executed positive identification

The outcome suggests that in Florence contrary to intuition and to our hypothesis (and the tendency of the findings gathered from London's pilot studies) the Non Drawing Groups were better able to identify the suspect-

50% דיוק בזיהוי אל מול 27% דיוק בזיהוי של קבוצת המאיירים בסכ"ה. כשבמיני מחקר שנערך בשעות הבוקר קבוצת הלא מאיירים הצליחה לדייק בזיהוי ב- 91% מהמקרים ואילו במיני מחקר שנערך בשעות אחרה"צ ב- 100% מהמקרים. ואילו קבוצת המאיירים הצליחה במיני מחקר שנערך בשעות הבוקר לדייק בזיהוי ב- 44% מהמקרים ואילו במיני מחקר שנערך בשעות אחרה"צ ב- 64% מהמקרים. יוצא אפוא, שקבוצת הלא מאיירים הצליחה לדייק במיני מחקר שנערך בשעות הבוקר ב-47% יותר מקבוצת המאיירים ובמיני מחקר שנערך בשעות אחרה"צ ב- 36% אחוזים יותר מקבוצת המאיירים. בסכ"כ הצליחה קבוצת הלא מאיירים לדייק בזיהוי ב- 40% יותר מקבוצת המאיירים.

* The range of confidence in correct identifications was 30-100%
* The majority of the students present made successful identifications.
* 3 students made incorrect identifications
* 8 students were unable to identify the suspect.

## **Conclusion- Insights and Aspects to improve and develop**

On one hand, booking of sessions and recruitment a large scale of English speaking graduate law students in Florence Italy was considered effective, framing the sessions brought in heterogeneous participation with students from across courses, creating potential for cross discipline and cross level participants. The Florence graduate law students expressed surprise at being asked to draw but cooperated eventually perfectly.

On the other hand, the unexpected results of the pilot studies in Florence require a close attention in order to draw conclusions and insight and to improve the methods of our research in order to better our experiment's system and avoid any biases.

As we know, Studies support the basic idea that in order to conduct an effective lineup, one should avoid presenting a suspect that stands out. In other words, to create a lineup in which the suspect will not stand out more than the others in the lineup (for example, not to place a yellow duck in the same lineup as 7 white chicks). Accordingly, The first idea that occurred to us as analysing the outcomes of the Florence pilot studies data, was that the "suspect's" face looked slightly ‘brighter’ on the photo line-up than the other pictures and we wondered if that might have improved the success identification rates. But even so, that wouldn’t explain at all the difference between the identification rates between the two groups and the extra orderly success of the non drawing groups compared to the drawing groups.

Continuance, and as mentioned before, when setting up the room it is important that there would be a good eye line towards the actor be identified to ensure all students have the potential to make a successful identification.

 Accordantly, Another thought that came into mind is that the room plan may have had some influence on the outcomes, that is, the right side tables (The Drawing groups) did not have a clear eye line to the "suspect" in both of the rooms.

Moreover, the screen/projector in both classrooms that the participants were focused on during my lectures in the workshops was located on the left side of the rooms.



(לסדר את התמונה)

Furthermore, it came clear to us that we gave the Drawing Group too much time (4 minutes) to draw and then the participants were more focused on drawing and less focused on the actual identification.

Accordantly, the longtime given the drawing group might have influenced the participants to stick to their drawing figure rather than pointing on the genuine "suspect" on the photo lineup.

Another aspect that came into mind is that dividing the classes into to two separated groups had also some influence on the results.

Confident in our initial research hypothesis—that the motor activity of drawing on paper, without any prerequisite for artistic skill, increases a witness’s ability to recall details of a perpetrator fixed in their memory following a criminal incident—and in order to provide police investigators all around the world a simple and accessible tool of having eyewitnesses draw what they saw to help them best recall a suspect’s facial features

התובנות שעלו מהמיני מחקרים שנערכו בפירנצה חידדו בה את ההבנה כי ישנם גורמים רבים שיכולים להטות את הזיכרון ולהשפיע על היכולת לדייק בזיהוי. בהינתן מספר המשתתפים המצומצם באופן יחסי של המשתתפים במיני מחקרים אלו, והתבוננות מקרוב על הגורמים שיכול והשפיעו על התוצאות במקרה הנוכחי והמסקנה כי אין המדובר בתוצאות קונקלוסיביות, מצאנו כי יש מקום לערוך עוד כמה מיני מחקרים נוספים עובר לעריכתו של המחקר רחב ההיקף שתוכנן על ידינו.

בנוסף לכך מצאנו לערוך פרוטוקול הדוק ומגובש יותר לצורך עריכת המיני מחקרים הבאים תוך שימת לב לאלה:

ראשית, ובכל הנוגע למסדר זיהוי התמונות עצמו, ולמרות שלטעמנו לא היה לכך אפקט מטה במקרה הנוכחי, מצאנו כי יש מקום להקפיד ולוודא כי כל הניצבים המופיעים בלוח מסדר זיהוי התמונות מצולמים מאותה מצלמה ושלא תהיה תמונה שהיא בהירה יותר או בולטת באיזשהו אופן יותר מהאחרות.

שנית, ובכל הנוגע לאופן עריכת המחקר עצמו מצאנו כי יש מקום להקפיד על תנאי מעבדה ועל עריכת המחקרים בתנאים זהים. כך, ובכל הנוגע לאופן ישיבת הקבוצות בכיתה במהלך האירוע המבויים והתערבותו של ה"חשוד" והפרעתו למהלך התקין של השיעור, מצאנו כי יש לוודא שלשתי הקבוצות בכל מיני-מחקר, תהיה זווית ראייה שווה ומיטבית לצורך התבוננות ב"חשוד" שנכנס לכיתה במהלך השיעור באופן שבו ה"חשוד" יכנס לכיתה ויעמוד יחד עם המרצה באמצע הכיתה.

שלישית, מצאנו כי יש מקום לקצר את משך הזמן שניתן לקבוצת האיור לצורך האיור תוך הדגשה בפניהם שאין מדובר בבחינת יכולתם האמנותית אלא בניסיון לשחזר את מאפייני פניו של ה"חשוד" מתוך הזיכרון.

ורביעית, מצאנו כי נכון יותר שלא לחלק את הקבוצות באופן דיכוטומי לקבוצת "מאיירים" ולקבוצת "לא מאיירים" אלא שכל המשתתפים במיני מחקר ישבו יחד ואילו הטפסים יחולקו באופן שבו כל אחד מהסטודנטים יקבל לידיו טופס אחר למילוי (כפי שנעשה במיני מחקרים בלונדון).

We have no doubt that the large-scale interdisciplinary study which will be conducted in a couple of countries simultaneously, and which combines two different bodies of knowledge (that share the common challenge of finding ways to improve human recall) will improve criminal law policy. Such policy reforms will be better, more effective, and fairer if based on knowledge that draws from other disciplines, rather than if they are determined in a manner that is disconnected from other bodies of knowledge that are based on similar, or even unrelated, disciplines.

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

כולנו תקווה שהתובנות שנלמדו מהמיני מחקרים שנערכו בפרצה יסייעו בידנו לטיובם של המיני מחקרים הבאים, ובסופו של יום יסייעו בעריכת המחקר רחב ההיקף שיסייע ולו במעט בצמצום הרשעות שגויות שנעשות על בסיס טעויות בזיהוי של עדי זיהוי.

# Appendix

**Mentimeter Site**

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