

THE EFFECTS OF SAME-RACE BIAS ON MEMORY AND PERCEPTION

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ABSTRACT

The accuracy of eyewitness identification and the effect of Own-Race Bias (ORB) on subjects' ability to identify a suspect were examined in a single experiment. Sixty-nine subjects viewed one of two videotapes of a staged theft; in one videotape, the perpetrator was Caucasian, and in the other, Asian. The subjects then attempted to identify the perpetrator from a lineup. Data regarding the participants' racial backgrounds and that of their friends' was collected through a questionnaire and then analyzed. The effects of ORB were not evident in the analysis of our data so several explanations for this lack of substantiation were explored.

INTRODUCTION

The issue of perception and memory – what we see, why we see it, and what we remember – is one that has extreme importance in our daily lives. Why do we forget and why do we notice one detail and not another? The accuracy of what we remember from an experience is especially important when we consider how much faith our justice system has in the validity of eyewitness accounts. A large measure of confidence is placed upon eyewitness identification, where a witness must select a suspect from a lineup based solely on recollection of the crime; however, there are fallacies in eyewitness identification, including a phenomenon called Own-Race Bias.

Each year in the United States, an estimated 77,000 people become criminal defendants after being identified from a lineup [1]. In a lineup, a suspect is placed among people, called *fillers*, who are known to be innocent of the offense. The eyewitness is then asked if one of the people in the lineup is the perpetrator. Despite the fact that eyewitness identification is responsible for more cases of wrongful conviction by juries than all other causes combined, our legal system continues to give a large measure of confidence to the testimony of these individuals [2,3]. A large volume of experimental literature shows that eyewitness testimony can be very persuasive even when the identification is mistaken, because jurors find eyewitness identification to be compelling evidence [4].

One study demonstrated the strength of eyewitness testimony [5] through recorded verdicts in a mock trial. Two separate sets of the jurors heard evidence differing only by the presence or absence of an eyewitness. Without eyewitness testimony, only 18% of jurors gave guilty verdicts. When there was an eyewitness, the percentage of guilty verdicts skyrocketed to 72%. Most importantly, the guilty rate remained high at 68% even when the identification was shown to be inaccurate. The jury was still much more likely to convict than if no eyewitness testimony had been given.

Although jurors rely heavily on eyewitness identification, there is overwhelming evidence that it is highly fallible and that eyewitness confidence is a poor gauge of accuracy. For example, a recent study [3] examined forty cases where DNA exonerated wrongfully convicted people. In 90% of the cases, mistaken eyewitness identification played a major role. In one case, five separate witnesses identified the wrong suspect. Eyewitness identification is an important factor in only 5% of all trials [7], yet a study [6] examining 500 wrongful convictions concluded that mistaken eyewitness identification occurred in 60% of those analyzed.

Cutler and Penrod [8] examined the accuracy of eyewitness identification from controlled studies performed in a “natural setting” (not in lab). In the typical study, a person enters a convenience store and performs some memorable action (such as paying in pennies) to ensure drawing the clerk's attention. Later the clerk views a photo spread and identifies the “customer.” The percentage of correct identification ranged from 34-48% and the percentage of false identification is 34-38%. Moreover, these results persisted even under highly favorable circumstances: extended duration, good lighting, clear visibility, and without the threat of a weapon. It is difficult to know how far to generalize such studies, but they suggest that eyewitnesses are almost as likely to be wrong as they are to be correct when identifying strangers.

Why do so many eyewitnesses falsely identify suspects? One reason may be Own-Race Bias. Own-Race Bias (ORB) is the condition in which people are more likely to be correct when identifying a person of their own race. Malpass and Kravitz were some of the first to introduce the idea of ORB (also called cross-race identification bias) in 1969. Some attribute the phenomenon of ORB to the human propensity to concentrate on the racial differences rather than individual facial characteristics when seeing someone for the first time [9].

In a typical ORB laboratory study, participants are shown a large number of faces of different races. Later, the subjects are asked whether these same faces are contained within another set of target faces. The second set also contains filler faces that were not present in the first group. The data is then analyzed to determine if there is a statistical presence of ORB within the laboratory studies [10].

In 1999, New Jersey State Supreme Court ruled that there should be special instruction for the jury in criminal cases if the witness and the defendant are of different races [13]. Justices ruled in *State v. Cromedy*, A 166 97 that failure to provide such instruction is irreversible error. The ruling puts into effect a recommendation of the Supreme Court Task Force on Minority Concerns Final Report, 131 N.J.L.J. 1145, which had been published but not yet adopted by the Court at the time of Cromedy's 1993 trial. The task force spent five years studying the issue, finally recommending that there be a special jury charge regarding the unreliability of cross racial identifications due to ORB.

Based on the results of the above studies, our team devised a project to examine the prevalence of ORB within the 2003 New Jersey Governor's School of Sciences population. The subjects watched a video of a staged crime with a perpetrator, who may or may not have been of their own race, and then were asked to identify that perpetrator from a lineup. The study examined if race was a factor in the subjects' ability to accurately identify the suspect.

METHOD

The subjects were 61 students from the New Jersey Governor's School of the Sciences summer program at Drew University. In addition the team project used eight counselors from the program. The students averaged an age of 16.8, while the counselors averaged 22.8. The study involved 35 females and 34 males, with 52.2% Caucasian participants, 24.6% Asian participants, 18.8% South Asian (Indian, Pakistani etc.) participants, and 4.3% other. They were asked to participate in the Psychology Team Project study and were scheduled to meet in the Psychology Room to watch a video and answer questions regarding it.

In order to conduct the study, the Psychology Team compiled two films, approximately one minute in length that showcased a staged crime committed by either an Asian or Caucasian perpetrator. Of the 69 subjects, 42 watched the Asian video and 27 viewed the Caucasian video. The videos were filmed in the center square of Madison. For each video, three students from the team project sat on a bench and were instructed to improvise a scene where they would discuss random issues. During the filming there were two cuts in which the camera angle changed, as well as certain elements, such as clothing, accessories and people changed. These changes were included in the video to produce a later distraction to the students who would participate in the study. During the discussion, a purse was on the ground next to the bench in view of the camera. In the third scene of the video, one of the people on the bench would either take something out of the purse or put something in it to draw attention to it. In that same scene, the perpetrator walked past the bench, leaned over, and stole the purse, looking up for a split second for a frontal view of the face and then left the view of the camera (Appendix A,C).

After viewing the video the subjects were given a questionnaire to complete in five minutes. The questionnaire contained questions pertaining to scenery, perceived change, and the actual crime including descriptions of the perpetrator (Appendix E). The main focus of the study was on whether eyewitness accounts are reliable, so the questions not surrounding the issue of the perpetrator were a distraction as to not reveal the main purpose of the study to the subjects. Some of these questions dealt with change blindness, the phenomenon where a large or even minor alteration to a video from scene to scene is not detected by the viewer. The questionnaire also included a section where the participant would mark A, B, C, or D, relating to the lineup of the possible perpetrator. A lineup, thus, was also a material used in the study. For both the Caucasian and Asian perpetrators there were three additional people of the same race and similar features shown together. There were two lineups with the perpetrator in two different positions to compensate for the possibility of participants discussing the results with others who had not yet taken the test. Each picture was placed against a white background and uniform in size and quality (Appendix B, D). The pictures of the *fillers* were obtained by asking for pedestrians in Madison to pose. A demographics sheet was also used for data collection. It asked such questions as gender, race, age of the participant, and the racial makeup of the participant's friends and school (Appendix F).

Groups of four to seven subjects participated at one time. Each group was instructed to arrive in the designated Psychology Room, where they were seated around a center table with a projector on one end which would display the video and lineup. First, the participants were asked to sign a consent form and to remain silent during the study. Next, they watched the video

depicting either the Asian or Caucasian perpetrator. After viewing the film, the subjects were given five minutes to fill out the questionnaire. Then, they were presented with the lineup for fifteen seconds and asked to identify the perpetrator. Following that, they were asked how confident they were of their choice on a scale of 1 to 5, with 1 being a complete guess and 5 being completely sure. Finally, the subjects filled out the demographics sheet. To conclude the experiment the students were thanked for their participation and the team requested that they preserve the study's integrity and not discuss it with their peers. Lastly, they were promised a debriefing and a full description of the study, including results, at the presentation.

RESULTS

Of the 69 subjects who participated in the experiment, 42 s watched the film depicting an Asian male stealing a purse (“Asian video”). Twenty-seven subjects of various races watched the Caucasian video (Fig. 1).

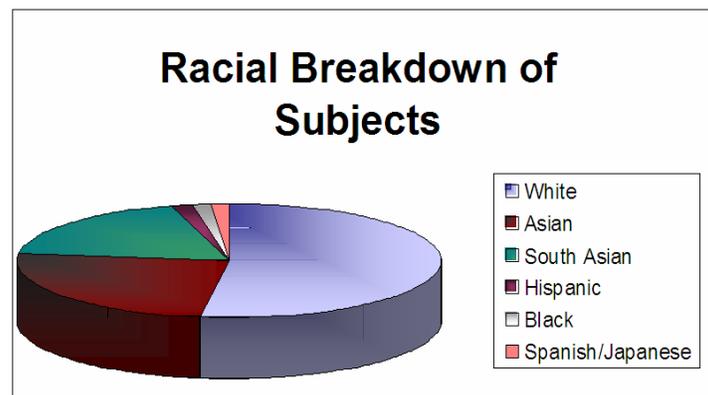


Figure 1

Before we can evaluate memory for a witnessed event, it is important to ensure that the eyewitness was actually paying attention when the event took place. To verify that our subjects were attentive while they viewed the video, we analyzed their responses to simple questions about the video. Every subject correctly recalled the topic of conversation among the actors. When asked to report the number of boys and girls on the bench in the video and to identify what item was taken out of or removed from a handbag, 88% answered correctly. Similarly, 86% of the subjects were correct in responding “no” to the question asking if a cell phone went off during the video (fig. 2). However, when asked if a police car appeared in the background, 45% of the participants responded “yes” incorrectly (fig. 2). These percentages were nearly identical for those watching the Asian and Caucasian video.

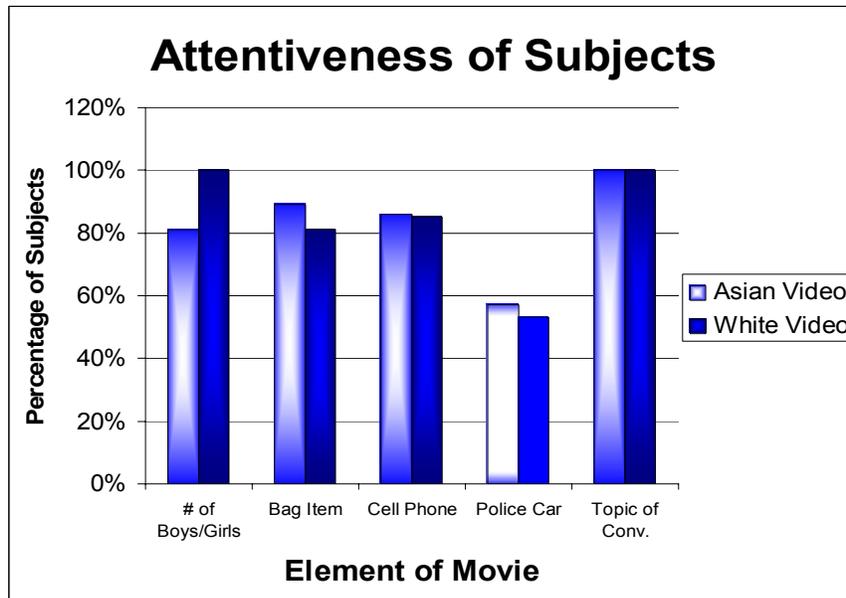


Figure 2

In order to test the subjects' memory for the perpetrator, we first asked them to recall what they remembered of the thief. First they were asked to identify his race. Of the subjects who viewed the Asian video, 56% of the subjects correctly reported Asian. A further 21% of the subjects believed that the perpetrator was Caucasian, 14% were not sure of his race, and one person thought that he was Hispanic. Of the subjects viewing the white video 61% correctly recalled the race of the perpetrator. Another 18% of the subjects were not sure. Seven percent of the subjects thought that the person was Asian, one person thought he was Hispanic, and another thought he was Indian.

Next, the subjects were asked to provide a sketch or description of the perpetrator. Even if they correctly reported the race of the perpetrator, they were often poor and/or inaccurate in their description, and some failed to provide any description at all. For the Asian video subjects, 4 subjects accurately described the clothing and their colors (e.g. "white shirt, and navy/black shorts"). Seven subjects could only describe the person's hair using adjectives such as long and dark. Of those seven, two incorrectly named the color of the person's shirt. A different three used height as a distinguishing factor. The reported perpetrator's height varied from 5'5" to 5'10", while his actual height was 5'8". For the Caucasian video subjects, 11 could only provide generic descriptions such as "white, male, and short". Seven could give no description. Fifteen gave accurate descriptions of the perpetrator (e.g. clothing, height, build, etc). Interestingly, two people named the perpetrator as a classmate who was sitting on the bench as the crime was committed.

An easier test of memory for the perpetrator was the lineup task in which subjects were provided with four faces including the perpetrator's and were asked to identify which was the thief. Across all subjects and videos, 62% were correct (25% would be expected due to chance alone). Breaking this down by video, 67% who watched the Asian video were correct whereas 56% who watched the Caucasian video correctly chose the perpetrator (fig.3).

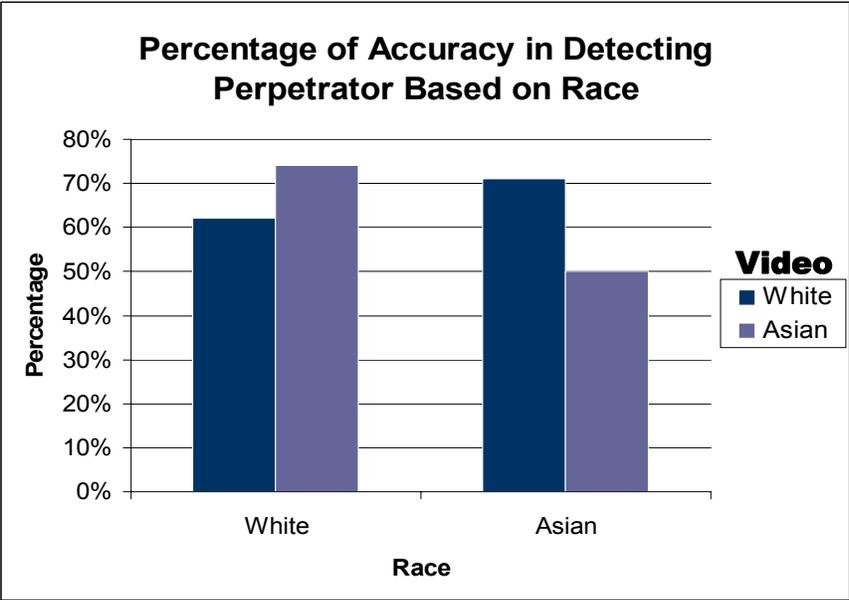


Figure 3

The subjects were also asked how confident they were about their choice of the perpetrator (1=complete guess, 5=completely sure). For those who watched the Asian video, the average confidence for correct responses was 3.9, whereas the average confidence for incorrect responses was 2.4 (fig.4). For those who watched the Caucasian video, the average confidence for correct responses was 3.2, whereas average confidence for incorrect responses was 3.0 (fig.4).

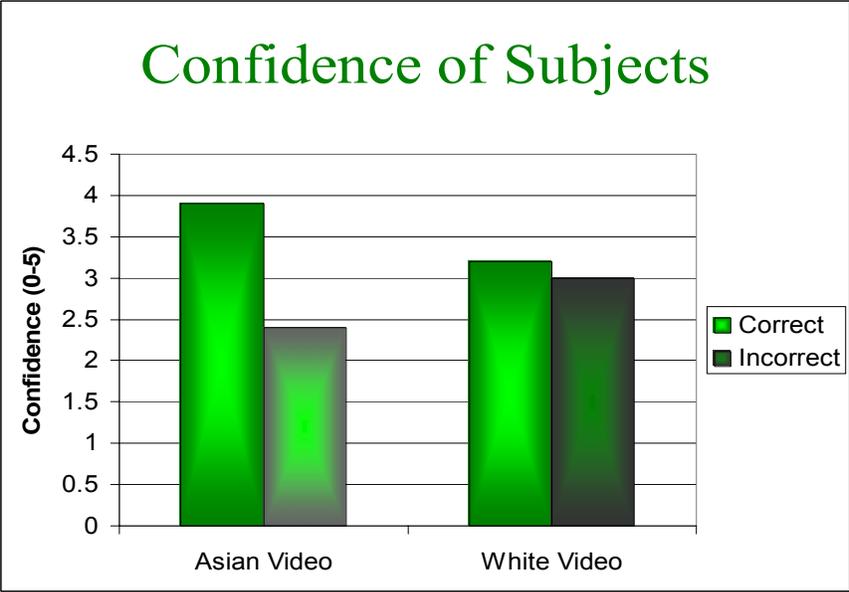


Figure 4

However, most importantly was the effect of the subjects' race in their ability to correctly identify the perpetrator. Results reported here are restricted to the 10 Asian and 23 Caucasian subjects who watched the Asian video and the 7 Asian and 13 Caucasian subjects who watched

the Caucasian video. For those who watched the Asian video, 50% of the subjects who reported themselves as Asians were correct, whereas 74% of the Caucasian subjects were correct in choosing the perpetrator. With regard to the Caucasian video, 71% of the Asian subjects were correct while 62% of the Caucasians were correct.

This experiment was also designed to assess subjects' inability to detect changes and inconsistencies across cuts in video scenes ("change blindness"). One change was substantial - an actor is replaced with a different actor across scene cuts. During the taping of the Asian video, the male present in scene 1 and 2 was replaced with another male in scene 3 (both of whom were Asian). Collapsing across race of subjects, a total of 72% correctly noted this change on their questionnaire. Breaking this down by race of the subjects, 90% of the Asian subjects noticed this change whereas 61% of the Caucasians subjects noticed this change.

Other than a switch between the actors, there were also smaller changes incorporated into both the Caucasian and Asian video. In the Asian video, 40% of the participants noticed that the actors either removed or added a pair of sunglasses. Twenty-eight percent of the participants noticed that different actors were holding a purse during different parts of the video, and 5% noticed that two of the actors had switched shoes. Two percent noticed that the water bottle had switched hands. In the Caucasian video, 54% noticed the actors switched sunglasses, while 36% noticed different actors carrying a purse, and 18% of the participants noticed that the water bottle changed hands. In addition to these noted changes, there were some changes that did not occur in the video that were nevertheless reported by the subjects. For example, it was reported that the to-be-stolen purse appeared after the first scene, that a water bottle disappeared, and that a cell phone disappeared (no cell phone ever appeared in the video). Other falsely reported changes include one of the actor's hair changing and an actor crossing and uncrossing her legs during the video.

DISCUSSION

The psychology experiment was designed to assess the accuracy of eyewitness accounts. Subjects' responses to questions regarding the videos (i.e. presence of a cell phone and topic of conversation) suggested that they were attentive and could clearly see and follow the plot of the videos. Although their memories were tested only minutes after witnessing the crime, their recollection of the perpetrator was poor. Not only did a little more than 60% correctly identify the perpetrator (chance being 25%), 42% could not even describe his race. When asked to sketch or describe the perpetrator before viewing the lineup, several subjects were vague or inaccurate in their description. For authenticity, we analyzed subjects' confidence. The average confidence rating for a correct identification was 3.6 whereas the average confidence rating for an incorrect identification was 2.7 (1 being a complete guess and 5 being absolutely sure). Not only were the averages similar, but the range for both correct and incorrect responses spanned the entire range from 1 to 5, indicating that the subjects were not certain, even when they were correct.

Ultimately, we expected that our Asian subjects would be better than our Caucasian subjects at identifying the Asian perpetrator and that our Caucasian subjects would be better than our Asian subjects at identifying the Caucasian perpetrator. However, our results did not follow this pattern, and if anything, suggested the opposite. Why? To answer this question we looked at our

subjects' responses to the demographic questionnaire--particularly the questions about their exposure to Asians and Caucasians. Unfortunately, their responses suggested that the majority of the subjects, regardless of their race, were more accustomed to Caucasians. The subjects' background did have a direct influence on their performance. In actuality, many of our subjects may not even have paid any attention to race. Several subjects were surprised to see only a single race represented in the lineup.

Nevertheless, Own-Race Bias did, in fact, present itself in the experiment, only in a different form. This phenomenon became apparent when we analyzed the responses to change perception. In the Asian video two Asian actors switched places. Only 65% of white participants noticed the change, while 90% of Asian subjects observed the switch. Because this switch occurred during the same scene as the robbery, the Asian subjects may have been distracted by the change while the Caucasians witnessed the robbery unimpeded.

However, in order to assess the effects of Own-Race Bias on memory for witnessed events, future research should test more subjects. While our experiment had sixty-nine subjects, the number in each condition was fairly low and irregular. Ten Asians, twenty-three Caucasians, and nine people of other races viewed the Asian video while seven Asians, thirteen Caucasians, and seven people of other races saw the Caucasian video.

The subjects themselves, rather than their quantity, were another factor that affected our results. With a significant number of experimenters, one has the benefit of having a population with wide-ranging intelligences and cultural exposures. In our case, however, our subjects consisted of highly talented and educated Governor's School scholars. But how could this fact affect the results? The majority of our scholars are school and community leaders and have seen and communicated with all different types of people. Therefore, a bias for a certain racial group cannot be the sole reason for their decisions. We need to discover other reasons for their poor performance. One factor may be that the subjects had previously read the description of the project. It stated that the project would focus on change-blindness. Our subjects expected to search for changes and flaws in the video rather than for the perpetrator. One may then state that this unexpected act was effective, because realistically people cannot expect to witness a crime. Unfortunately, we may have completely caught the subjects off guard. The viewers may have totally missed the perpetrator acting in the periphery by focusing too much on the three actors on the bench. Perhaps this is an explanation for those who described the Asian perpetrator as Caucasian or Hispanic.

Or perhaps it was simply the poor video quality. One was unable to make out a clear image of the perpetrator partly because he appeared on screen for a few seconds and partly because the images were not ideally sharp or crisp. Then how can we account for the superior performance of those who viewed the Asian video? It may have been the perpetrator's distinct hair style. He had long hair reaching down to the middle of his neck and bangs that covered most of his forehead. In fact, several subjects noted this characteristic in their character description. Thus, this distinct quality of the perpetrator may have drastically separated him from the rest of the fillers.

References

- [1] Goldstein AG, Chance JE, Schneller GR. Frequency of eyewitness identification in criminal cases: a survey of prosecutors. *Bulletin of the Psychonomic society*, 27, 71-74; 1989
- [2] Scheck B, Neufeld P, Dwyer J. *Actual innocence*. New York: Random House; 2000
- [3] Wells, et al. Eyewitness identification: the importance of lineup models. *Psychological Bulletin*, 99, 320-329; 1998.
- [4] Wells GL, Rydell SM, Seelau EP. On the selection of distracters for eyewitness lineups. *Journal of Applied Psychology*, 78, 835-844; 1993.
- [5] Loftus E, Doyle J. *Eyewitness Testimony: Civil and Criminal*. The Michie Company: Charlottesville; 1992.
- [6] Huff C. Wrongful conviction: Societal tolerance of injustice. *Research in Social Problems and Public Policy*, 4, 99-115; 1987
- [7] Loh WD. Psycholegal research: Past and present. *Michigan Law Review*, 79, 659-707; 1981.
- [8] Cutler B, Penrod S. *Mistaken Identity*. Cambridge University Press: Cambridge UK; 1995.
- [9] Levin D. Race as a Visual Feature: Using Visual Search and Perceptual Discrimination Tasks to Understand Face Categories and the Cross-Race Recognition Deficit. *Journal of Experimental Psychology: General*, 129,559-573; 2000.
- [10] Wright D, Boyd C, Tredoux C. *A Field Study of Own-Race Bias in South Africa and England*. American Psychological Association; 2001.
- [11] Banks WP. Signal detection theory and human memory. *Psychological Bulletin*, 74, 81-99; 1970.
- [12] Brigham JC, Barkowitz P. Do "They all look alike"? The effect of race, sex, experience, and attitudes on the ability to recognize faces. *Journal of Applied Social Psychology*, 8, 306-318; 1978.
- [13] Ackerman M. "Special Jury Instructions Need if Cross Racial ID Uncorroborated." *New Jersey Law Journal*, April 19, 1999.

Appendix A.
Still Shots of Asian Video

Prior to Theft and Character Change



During Crime and after Character Change



Appendix B.

Asian Lineup



Appendix C.
Still Shot of Caucasian Video

2nd Camera Angle and Prior to Theft

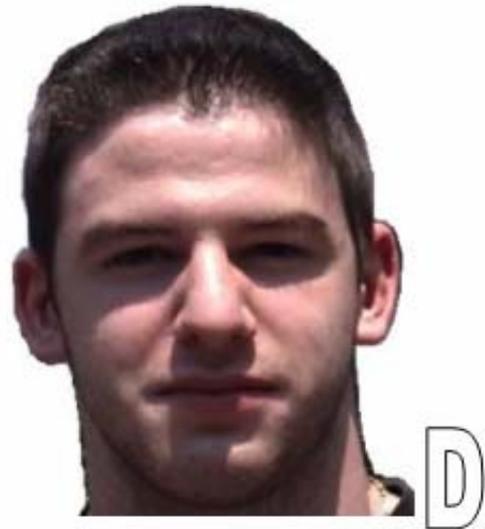


Camera Angle Change and During Theft



Appendix D.

Caucasian Lineup



Appendix E.
Questionnaire:

How many girls were on the bench?
a)1 b) 2 c) 3 d) Not sure

How many boys were on the bench?
a)1 b) 2 c) 3 d) Not sure

How many people were wearing sunglasses?

What was taken out/put into the bag that was located at the side of the bench?

Did you notice any unusual differences from one shot to the next where objects, people, or clothing suddenly changed? If so, please describe.

What was the race of the perpetrator?

Did you notice anything unexpected happen while the conversation was taking place?

Did a cell phone ring during the conversation?

Did a police car go by?

What was the conversation about?

Do you recognize where the conversation took place?

Please describe/draw a sketch of the culprit.

A B C D

Appendix F.

Demographics Form:

Age:

Sex (M/F):

What county are you from?

How large is your high school class?

From the choices below, which ethnicity do you most affiliate with? (Check one)

- Black/African American
- White/Caucasian
- Asian (China, Korea, Japan, etc)
- Southern Asian (India, Pakistan, Bangladesh, etc)
- Hispanic/Latino/Chicano
- Other (Specify _____)

Are your friends primarily of your race? If not, please specify.

What is the racial composition of your school?