

# DO UNIQUE FACIAL FEATURES BIAS PHOTO ARRAY IDENTIFICATIONS?

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**ABSTRACT:** Two experiments examined conditions thought to bias photo array identifications of crime suspects — distinctiveness and perceived criminal relevance of the suspects' facial features. The first study varied the number of suspected shoplifters in a photo array who wore eyeglasses. Members without glasses, whether they were few or many, tended to be identified more frequently than members with glasses. In the second study, consistent with previous demonstrations that glasses evoke social judgments of intellectual competence while beards evoke judgments of aggressiveness, subjects who read about the burglary of a software store tended disproportionately to choose the distinctive photo array member with eyeglasses while subjects who read of a hardware store burglary tended to choose the uniquely bearded member. Unique facial features consistent with people's stereotypes of perpetrators and crimes can bias photo array judgments.

**KEYWORDS:** Eyewitness identifications, lineup/photo array bias.

## STUDY 1

One of the most important pieces of courtroom testimony determining the course of a criminal trial is an eyewitness's identification of the defendant as the perpetrator. Yet error can occur at several points in the identification process (Woocher, 1977) and, if uncorrected, can lead to a tragic miscarriage of justice by convicting an innocent person and letting a guilty person remain unprosecuted. Study 1 was designed to examine the possibility of bias in eyewitness identifications stemming from including distinctive stimulus persons in a photo array.

Witnesses to a crime may be asked to identify the perpetrator from a photo array of possible suspects or, more usually, one suspect and several known-to-be-innocent distractors. An array can be considered biased if one or more members are chosen beyond chance by judges who had never witnessed the crime; that is, if the functional size (the number of members selected by mock witnesses) is significantly less than the nominal size (the number of members in the array) (Doob and Kirshenbaum, 1973; Malpass, 1981; Wells, *et al.*, 1979). One source of bias leading to a preponderance of choices might be the distinctiveness of a member of the array (Lindsay and Wells, 1980).

Eyewitnesses are apt to approach a photo array with the "set" or expectation that one of the photos is unique. After all, one of the persons is guilty of the crime, and the others are innocent. Witnesses may scan the array for a member who "stands out" because of some unusual feature and then select that unique member as the suspect. Buckhout (1974) experimentally created a biased array by having one of the faces appear with a unique expression and angle of tilt; the unique face was chosen more frequently than the same face with an expression and posture more similar to the other members of the array.

That suspect distinctiveness might bias judgments of lineups has been discussed in court cases involving arrays containing a member of unique complexion (State v. Burch, 284 MN 300, 1969), hair color (Massen v. State, 41 WI 2d 245, 1969), clothing (People v. Chambers, 112 IL App. 2d 347, 1969; People v. Stanton, 274 CA App. 2d 13, 1969), and ethnic membership (State v. Parker, 282 MN 343, 1969). Albeit real cases, these examples all deal with almost ludicrously large variations of similarity. Would less extreme, more realistic manipulations of distinctiveness also produce bias?

In Study 1, the role of a more subtle source of bias, the unique presence or absence of eyeglasses, was examined. Subjects covertly role played being witness to a hypothetical crime and tried to identify the culprit from a 6-person photo array in which no, some, or all members wore eyeglasses. The author hypothesized that the minority face(s) (distinctly with or without glasses) would be preponderantly selected as suspects over the majority faces.

### MATERIALS AND METHODS: STUDY 1

**Subjects.** Responses were obtained from 94 volunteer introductory psychology students. Other than being ignorant of the independent variable, participants gave informed consent and received bonus course credit.

**Materials.** Mac-a-Mug Pro™ computer software was used to generate six faces with different hair, eyes, noses, ears, mouths, and chins. Reasonably realistic faces were created without obviously unusual appearance. A set of twin faces was created by adding different eyeglasses to each of the original faces.

The six original faces without eyeglasses were randomly positioned (by roll of a die) in two rows of three faces each. This array was labeled G1 = 0 to indicate that none of the faces had eyeglasses. Next, one of the faces was randomly designated to be replaced by its bespectacled twin. This array was labeled G1 = 1 to indicate that one face had eyeglasses while the remaining five faces did not have glasses. Then, two of the original faces were randomly designated to be replaced by their bespectacled twins; the resultant array was labeled G1 = 2. Arrays labeled G1 = 3, G1 = 4, and G1 = 5 were also created in the same way. A final array, G1 = 6, was created by having all six of the faces wear eyeglasses.

**Procedure.** Subjects were tested in variously sized groups. Written instructions with one of the seven arrays were randomly distributed. The materials instructed the subjects to imagine driving through a store parking lot looking for a parking space, when suddenly a man carrying a large bag runs in front of their car. They get a good look at him before he races to a nearby car, jumps in, and speeds away. The person is described only as a man. A guard approaches and says that the man was a shoplifter who had just run off with a considerable amount of expensive merchandise. The subjects were asked to pretend that the guard asks them to identify the culprit. On the basis of this brief covert role playing exercise, the subjects circled one of the faces on their photo array to indicate their choice of the shoplifting culprit.

Table 1. Chi-square analyses of observed and expected choices of stimulus faces with (G1) and without (No G1) eyeglasses related to the number of bespectacled stimulus faces in the photo array (Study 1).

Photo Array (G1)	Observed Facial Choices		Expected Facial Choices		$\chi^2$
	G1	- No G1	G1	No G1	
1	0	11	1.83	9.17	2.20
2	1	13	4.67	9.33	4.33*
3	1	12	6.50	6.50	9.31**
4	3	8	7.53	3.67	7.10**
5	5	10	12.50	2.50	27.00***
Totals	10	54	32.00	32.00	30.25***

\*  $p < 0.05$   
 \*\*  $p < 0.01$   
 \*\*\*  $p < 0.001$

### RESULTS: STUDY 1

Within each array, chi-square analyses were performed on the distribution of choices of the face(s) with eyeglasses compared with the face(s) without glasses (Table 1). The results indicate that regardless of whether 2, 3, 4, or 5 of the faces had eyeglasses, the face(s) without glasses was (were) chosen more frequently than expected.

The distribution of choices in the G1 = 1 array was nonsignificant ( $\chi^2 = 6.84$ ;  $p > 0.05$ ) but significant for the G1 = 6 array ( $\chi^2 = 15.13$ ;  $p < 0.01$ ). Two stimulus faces tended to be chosen beyond chance expectations. Across all seven arrays, these two faces received more choices (51 out of 94 choices) than expected ( $\chi^2 = 18.52$ ;  $p < 0.001$ ). Therefore, the chi-square analyses were recalculated on the array distributions with the choices of these two faces eliminated. A tendency persisted for the remaining faces without eyeglasses to be chosen more frequently than the remaining faces with glasses ( $\chi^2(1) = 17.06$ ;  $p < 0.001$ ).

### DISCUSSION: STUDY 1

The author anticipated an inverse relationship between the proportion of choices of the stimulus faces with eyeglasses and the number of bespectacled faces in the array, but the results showed a direct relationship. On the basis of these results, facial distinctiveness, defined in terms of eyeglasses, was not a biasing factor in the subjects' choices, but whether or not a face had eyeglasses was a source of bias: subjects tended not to choose bespectacled faces.

Because this result was unanticipated, any interpretation of it would have to be *post hoc* and untested. One could surmise, however, that it is related to the social judgments associated with eyeglasses. Persons who wear eyeglasses tend to be perceived as relatively meek and unassertive and, at the same time, as intellectually competent (Terry and Krantz, 1993). The shoplifting scenario portrayed a culprit whose strength and impulsiveness were not representative of

the stereotypical person who wears eyeglasses. Perhaps, if the crime enacted were to have more obvious intellectual characteristics, a suspect with eyeglasses might be more likely to be selected from a photo array. A second study was designed to pursue this notion.

## STUDY 2

The nature of the merchandise shoplifted or stolen in a burglary could imply characteristics of the perpetrator (Christiaansen, *et al.*, 1983). As an obvious example, the theft of narcotics from a pharmacy suggests that the thief is a drug user or dealer. Similarly, a theft of books implies that the burglar likes to read, and a theft of hunting equipment implies that the burglar likes to hunt. Terry and Krantz (1993) reported that eyeglasses led to a stereotype of an intellectual, passive person and that facial hair evoked a stereotype of an aggressive, cognitively limited person. It follows that the theft of books somewhat implies a perpetrator with eyeglasses, while the theft of hunting equipment implies a bearded perpetrator.

In Study 2, subjects read about either the burglary of a computer software store by a person who was computer sophisticated or the burglary of a hardware store by a person who collected knives. The software burglary was meant to suggest a culprit who was more intellectually inclined than physically aggressive, while the hardware burglary suggested an opposite sort of culprit. Subjects who read the software scenario were predicted to show a tendency to select a uniquely bespectacled member of a photo array, and subjects who read the hardware scenario were predicted to show a bias toward a uniquely bearded member of a photo array.

## MATERIALS AND METHODS: STUDY 2

**Subjects.** Ninety-three of the introductory psychology students who served in Study 1 participated in Study 2. Although ignorant of the independent variable, they provided informed consent and received bonus course credit.

**Materials.** A male face was generated with the Mac-a-Mug Pro™ computer software. The face, not from Study 1, was modified by adding either a moustache, full beard, long hair, cap, eyeglasses, or African-American shading and short hair. The six variations were randomly assembled into an array of two rows of three faces each. The author intended to create an array of six similar faces, each with a discriminable uniqueness.

**Procedure.** Subjects were tested in variously sized groups. They received at random one of two written versions of a burglary. One version described a burglary of the Crosswell Software Store. The burglar entered a back door without force. A hidden security camera recorded the burglar stopping to read some books. As he moved on, he bumped into a store display of highly technical computer manuals, which he began to study. He picked up a package of materials and walked off with it with effort even though it weighed only a few pounds. When the suspect was apprehended at his home, he gave no resistance. He was found to own a computer system and an extensive library of computer materials. This scenario was meant to create an impression of a perpetrator who was physically weak and interested in intellectual pursuits.

Table 2. Distribution of photo array choices in the two experimental conditions of Study 2.

Burglary Site	Stimulus Condition					
	Moustache	Beard	Hair	Cap	Eyeglasses	Shading
Software	2	0	5	4	30	1
Hardware	4	24	10	1	6	6

The other version described a burglary of the Crosswell Hardware Store. The burglar made a forced entry through a back door. The security camera recorded him examining some animal traps. As he moved on, he bumped into a display of lethal hunting knives and hatchets. He put several into a heavy tool box weighing about 50 pounds and effortlessly walked out of the store. When he was apprehended at home, he put up a struggle. He was found to own an extensive collection of knives and guns as well as magazines depicting aggression and violence. The intent was to create an impression of a perpetrator who was physically strong and interested in violent pursuits.

After reading one of the scenarios, the subjects were instructed to circle the burglar on an attached photo array and to write briefly the reasons for their choice.

## RESULTS: STUDY 2

Thirty (71%) of the 42 subjects in the Software condition chose the bespectacled face in the photo array (Table 2). The chi-square comparing the choices of the bespectacled member compared with the other five faces combined was significant ( $\chi^2 = 90.68; p < 0.001$ ). Twenty-four (47%) of the 51 subjects in the Hardware condition chose the bearded face in the photo array ( $\chi^2 = 33.92; p < 0.001$ ).

An analysis of the reasons subjects gave for their choices revealed some interesting patterns. Subjects in the Software burglary condition, who chose the bespectacled face, explained their choice by saying that the suspect with glasses had poor visual acuity which contributed to his knocking over the store display ( $n = 13$ ), or that the subject appeared frail, weak, and quiet ( $n = 21$ ), or intellectual ( $n = 16$ ). Subjects in the Hardware burglary condition, who chose the bearded suspect, said that he looked like an outdoor, wilderness man ( $n = 14$ ), who was large, strong, and aggressive ( $n = 26$ ). These rationales, which were the most frequently offered, are consistent with the social judgments people make of persons with eyeglasses and beards.

## DISCUSSION: STUDY 2

The nature of a crime can imply the characteristics of the perpetrator (Christiaansen, *et al.*, 1983). And, as shown in the present research, subtle uniquenesses in a photo array consistent with inferences about the perpetrator can attract a preponderance of choices. The robbery of a computer software store by a presumably peaceable, computer-literate thief implies an intellectually inclined, nonaggressive culprit. Persons who wear eyeglasses are often stereotyped as

intellectually inclined and nonaggressive (Terry and Krantz, 1993). Hence, a uniquely bespectacled photo array member, judged as frail and intellectual, stands out as most representative of the perpetrator and is identified as the suspect. In like manner, the theft of hunting knives by a violence-prone perpetrator implies a physically inclined culprit. Bearded men tend to be stereotyped as such (Terry and Krantz, 1993). In this case, a uniquely bearded photo array member, judged to be active and aggressive, tends to be identified as the thief.

Levine and Tapp (1973, p. 1120) advised that "...any unusual physical characteristic of the suspect should be kept uniform among lineup participants (e.g., wearing glasses)." This advice appears to be especially apropos when the unique facial feature, such as eyeglasses or facial hair, is implied by the crime.

As mock witnesses, my subjects witnessed no crime or perpetrator, and, consequently, the accuracy of their identifications could not be assessed. The bias demonstrated in this research can not be equated with accuracy. What these results most clearly illustrate is that people have stereotypical preconceptions of what kind of persons commit which sort of crimes (Zebrowitz and McDonald, 1991). If a photo array member is uniquely presented with features consistent with such preconceptions, subjects tend disproportionately to identify that member as the perpetrator. An interesting extension of this result would be to simulate a crime with an actual culprit to determine if witnesses' accuracy of photo array identifications is affected by their preconceptions and the inclusion of members uniquely presented with consistent features.

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