BIAS IN PHOTOSPREADS OF FACES: A COMPARISON OF TWO LINEUP CONSTRUCTION METHODS

D. Bradley Marwitz & Michael S. Wogalter
Psychology Department, University of Richmond
Richmond, Virginia 23173

ABSTRACT

Recent research suggests that the current method of lineup construction produces biased or suggestive lineups. Earlier studies used face composite stimuli to assemple the lineups. The present study uses more realistic materials, actual face photographs. Ten pairs of subjects constructed photospread lineups using the traditional method of selecting lineup members who are similar in appearance to the suspect. Another ten pairs of subjects constructed lineups using an alternative construction method. The lineups were then given to a separate group of subjects who had never seen the photographs before and were asked to try to select the face that was the basis for each lineup. The results showed that traditional lineup con· .uction method produced bias towards the target/suspect. The alternative construction method produced ..ss bias, but not significantly less than the traditional method. These results have implications for law enforcement personnel concerned with the construction and presentation of lineups.

INTRODUCTION

Eyewitness identification is an important part of many criminal investigations, and in some cases, such as assaults and rape, it may be the only direct evidence available (Malpass & Devine, 1984). After viewing a crime, an eyewitness may be asked by law enforcement officials to examine a live lineup. The lineup (also called the identity parade) contains several persons known to be innocent plus one person suspected by the police to have committed the crime. The purpose of the lineup is to allow the witness to identify the person they saw under conditions that avoid the identification of an innocent police suspect.

Protection of the innocent suspect is afforded by a fair lineup. A fair lineup presents the suspect free from any form of suggestiveness or bias. A biased or suggestive lineup is defined as a lineup which has been constructed such that noneyewitnesses are able guess the suspect. More formally, when persons who did not witness a crime are able to correctly select the suspect from a lineup more often (or less often) than would be expected by chance then the lineup is biased. Chance is defined as $1/n$, with n being the number of people in the lineup (Doob & Kirshenbaum, 1973).

To avoid bias, police use a lineup construction procedure of selecting other members of the lineups (innocent foils or distractors) who are similar in appearance to the suspect. Wells, Leippe, and Ostrom (1979) suggest that distractor members of the lineup should be plausible and similar in appearance to the suspect as well as to each other. Malpass and Devine (1983) state that the similarity requirement appears in all of the lineup construction guidelines that they reviewed. However, this criterion has not always been followed. Buckhout (1977) reports a police lineup in which a black suspect was placed in a lineup with five white distractor members. The United States Supreme Court has reviewed several cases of alleged lineup biases and cites instances of suggestiveness. In one famous eyewitness identification case, *United States v. Wade* (1967) the suspect was known to be a young man, but the lineup consisted of several men over forty years of age and one teenager. The Court also cited another case where, a male Oriental suspect was placed in a lineup in which he was the only Oriental. Although extreme, these cases do illustrate that making the suspect distinctive makes the lineup unfair.

While it seems essential to construct lineups wth foils that are similar to the suspect face, recent research suggests that there is a problem with using this procedure (Laughery, Jensen, & Wogalter, 1988; Wogalter & Jensen, 1986). This research shows that lineups based solely on the similarity of the foils to the suspect might, itself, cause a form of bias. Lineups constructed in this manner make the suspect distinctive in an unusual way: The suspect is the most similar face in the lineup. The suspect is more similar looking to the foils than they are to each other.

In one experiment reported by Laughery et al. (1988), subjects were initially shown a large number of face photographs and then shown a series of ten photospreads, each containing six faces. Subjects ranked each face in the lineup as to the likelihood of it being one of the faces that they had seen before in the initial phase. Unbeknownst to the subjects, none of the faces in the lineups had been shown earlier. In this study the faces were generated using the Mac-a-Mug Pro composite system which allowed the independent manipulation of face features. For each lineup, a target ("suspect") face was first generated and then a series of five distractor faces were generated such that each distractor differed from the respective target face by only one feature (e.g., one distractor differed from the suspect face by having a different nose, another distractor had a different mouth, etc.). This created a situation in which each distractor face differed from the other distractor faces by two features. The target face was the prototypical face of the lineup. It was more similar to each of the distractors than they were to each other.

The interesting result was that the prototype/suspect face in the lineup was ranked as being significantly more familiar (judged as having been seen in the initial phase) than would be expected by chance. Even though the subjects had not seen the prototype/suspect face prior to the viewing of a lineup, it drew more than its share of identifications.

Thus, using a method analogous to the way police have

been advised to construct lineups and photospreads — selecting distractors similar to the suspect — seems to produce lineup bias. Although the logic and methodology of Wogalter and Jensen (1986) and Laughery et al. (1988) are internally valid, these studies migh be questioned in terms of external validity. The distractor faces were constructed so that each distractor member differed by only one feature from the "suspect." This might have produced a lineup unlike any that would occur in a real life situation. It is very unlikely that police would find persons that differed by so few features. In addition, the faces were also artificial in the sense that that they were composites and not necessarily reflective of actual faces. Therefore, we do not know whether the kind of bias reported by Wogalter and Jensen (1986) and Laughery et al. (1988) would hold in more realistic lineups where many more features vary even among very similar appearing faces. The present study sought to examine this, utilizing materials and procedures that resemble those used by law enforcement personnel.

Assuming we were to find the prototype bias using the traditional method of contructing lineups, we also sought to examine an additional issue. How might one construct an unbiased lineup? A second purpose of the present study was to examine an alternative method of lineup construction that was hoped to eliminate (or at least, reduce) bias. In the *traditional* method, foils were specifically selected to be similar to the suspect. In the *dual-target* method, as we have called it, foils were included in the lineups based, not only on their similarity to the suspect, but also to another designated member of the lineup. We hoped that constructing the lineup around two faces rather than just one, would make the suspect face less prototypic, and thus, less distinctive.

METHOD

The present study involved three parts: the preliminary, construction, and presentation phases. In the preliminary phase, facial photographs were obtained, grouped and placed in envelopes. In the construction phase, pairs of subjects constructed the lineups using one of two methods, either following instructions for the traditional or the dual-target method. In the presentation phase, the lineups were given to another group of subjects who attempted to guess which was the suspect.

Subjects

Twenty University of Richmond undergraduates participated in the construction phase. Pairs of subjects constructed two lineups using either the traditional or dual-target method. A separate group of 82 University of Richmond undergraduates participated in the presentation phase. These subjects attempted to guess which of the faces in the lineup was the suspect face. All subjects participated for course credit in introductory psychology courses.

Procedure and Stimuli

Preliminary phase. A large number of photographs of white male faces of senior students (who had graduated seven to 10 years earlier) were copied from University of Richmond yearbooks and cut into individual pictures. From this pool, 20 pictures were randomly selected to be the "suspect" or target faces. For each target, the

researchers chose 25 possible distractor faces based on a reasonable similarity to each respective target face. Thus, each of the 20 target faces had a foil pool of 25 faces for a total of 520 faces. Each target face was labeled on the back of the photograph and placed in a numbered envelope along with its foil pool.

Construction phase. Ten pairs of undergraduate students from the University of Richmond were each given two of the 20 envelopes and given instructions on the method of lineup construction that they were to use. Each group generated one lineup from each envelope.

Five of the groups were given instructions to construct lineups using the *traditional method*. They were told to find the target ("suspect") face in the envelope, and then from the remaining photographs to construct a lineup by first selecting the most similar face to the target, then the next most similar, and so on until they had selected the five most similar faces to the target.

The other five groups were given instructions to construct lineups using the *dual-target method* of construction. These subjects were told to find the target ("suspect") face in the envelope, and then from the remaining photographs to select one other face that was somewhat similar, but not necessarily the most similar, to the target face. They were told that after finding this second face to complete the lineup by selecting the four remaining foils based on their similarity to both the target face and the second face.

Once each lineup was constructed, the experimenter placed the six faces in a separate envelope labeled with the construction method that was used. The procedure was repeated using the same construction method for the second lineup as the first lineup.

Presentation phase. The experimenters took the 20 completed lineups and affixed each to the inside of large manila folders. Each folder was numbered from 1 to 20 and the faces within each folder were labeled 1 to 6. The target and the distractors for every lineup were positioned in a random order. Further, the order in which the 20 lineups were presented to subjects was randomized for each subject.

Subjects were told that there was a police suspect present in each lineup. They were to study each lineup carefully and to select the face that was the basis for the lineup. Subjects were further told that they should not be concerned with how "guilty" particular faces look. Rather, they were to try to determine around whom the lineup was constructed. They were instructed to make a choice for every lineup and to guess if necessary. Subjects marked their responses on a sheet that had spaces corresponding to the order of the faces in the lineups.

RESULTS

The data were examined with regard to how often the target ("suspect") faces were selected relative to what would be expected by random/chance selection. If the subjects were merely selecting faces at random, the mean value for the target faces would be 1/6, or 0.1667. Selection rates above this level would indicate the lineups are are biased in the direction of the suspect/target.

Each target face was given a score of 1 when selected by a subject and a score of 0 if any of the 5 distractors was selected. Selection scores were averaged across the ten lineups for each method. The mean proportion selection rate for lineups constructed using the traditional method was 0.2085 and the mean proportion selection rate for lineups constructed using the dual-target method was 0.1927. The target selection rates for both methods were compared to rate expected by random/chance selection. Target faces in the traditional method lineups were chosen significantly more often than would be expected by chance t $(81) = 3.13, p < .01$. Target faces in dual-target lineups were also chosen more often than chance, but the difference was not significant, t $(81) = 1.77, p > .05$. Although target faces in traditional method lineups were chosen more often than target faces in dual-target lineups, this difference was not significant, t $(81) = 0.89, p > .05$.

DISCUSSION

The present research sought to answer two questions. First, we wanted to examine whether the traditional method of selecting lineup members which are similar to the suspect would produce bias or suggestiveness. Earlier work by Wogalter and Jenson (1986) and Laughery et al. (1988) suggested that this was the case. However, these studies used sets of stimuli that were developed from composite systems that had very limited differences between the faces of the lineup. We used actual face photographs in the present study and a methodology similar to what law enforcement officials use. The results of the present study supports the earlier work of Wogalter and Jenson (1986) and Laughery et al. (1988) in that the current method of producing lineups produces bias or suggestiveness toward the suspect.

A second purpose of the present study was to examine an alternative lineup construction method that might be free from this bias. In contrast to the traditional method, where all distractors are selected based on their similarity to the suspect, the dual-target method included distractors based on their similarity to the target face as well as their similarity to another distractor face. Although the present research did find that the dual-target method seemed to reduce the bias toward the target, the difference in mean selection rates between lineups constructed using this method and lineups using the traditional method was not significant. This indicates that the dual-target method is not free of bias, but suggests that less biased methods for lineup construction might exist.

Although the mean differences away from chance for both methods are small, they do indicate there is some probability that an innocent police suspect will be selected. The basis of most legal systems is that this kind of error should be avoided all costs. We would rather make the error of not convicting a guilty person than the error of convicting an innocent person. This is the reason why fair lineups are needed. Any kind of lineup bias, no matter how small, is not acceptable. Our results suggest that in the long run the number of errors committed would be intolerably large.

A comment should be made regarding two aspects of the procedure that were somewhat unrealistic. First, subjects were forced to make a choice for every lineup. In an actual lineup situation, witnesses are free to choose or not to choose a person from the lineup. This would seem to call into question the validity of our results. However, according to signal detection theory, people differ with regard to their criteria of responding. Some persons will be very conservative in making their selections and others will be be more lax/liberal. So, although we forced subjects to make selections, the pattern of selections should still reflect the pattern given by subjects using a liberal response criterion; that is, those who would tend to make a selection even in conditions where they have the opportunity not to make a choice.

The second aspect of our procedure that needs further explanation is that we asked our subjects to select out of the lineup the face that was the basis of the lineup. We gave our subjects these directions, because unlike the earlier work by Wogalter and Jensen (1986) and Laughery et al. (1988), we did not show faces to them prior to lineup presentation. Fortunately, we found results that concurred with the earlier work. Had we failed to replicate these results, we would not have known whether the failure was due to this methodological difference or due another variable.

The present results have implications for the police lineup construction procedures. Although current guidelines on fair lineups recommend that distractors be selected on the criteria that they are similar to the suspect, there is an interesting paradox. The present results indicate that foils should not be selected merely on their similarity to the suspect because this makes the suspect distinctive in terms of similarity. So, even though the current construction procedure was intended as a way of avoiding lineup bias, it, too, produces bias. Law enforcement officials using lineups for eyewitness identification should be aware that lineups with foils highly similar to the suspect may be biased. One way to verify whether a lineup is unbiased is through the collection of judgments from nonwitnesses who attempt to guess the suspect. Continued research should be focused on trying to develop a lineup construction technique that is free from bias in order to ensure that this aspect of the legal system is operating as efficiently and fairly as possible.

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