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A Position of Influence: Variation in Offender Identification Rates by Location in a Lineup

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Abstract

Researchers have identified several threats to the validity of the use of the lineup as a test of true recognition. One concern is related to the structure of the simultaneous lineup. It is argued here that a simultaneous presentation of an array nonetheless requires the viewer to undertake sequential processing of the items in the array. This sequential pattern is unlikely to be random and therefore the position of a culprit in a lineup may have a significant effect on accuracy of witness selection. A simulated crime (snatching of a handbag) was shown to a convenience sample of 84 undergraduates aged between 18-23. In 84 subsequent live lineups, the offender was placed with four foils. He was positioned on the far left [position 1] in 42 cases (50%), and in 14 cases respectively in positions 3 (centre), 4 (centre right) and 5 (extreme right). A very strong association was found between position and correct identification with position 1 placement leading to a significantly lower proportion of correct identification (7.1%) compared to position 3 (50.0%), position 4 (64.3%), and position 5 (21.4%). Steps to remedy possible positional biases are considered.

A Position of Influence: Variation in offender identification rates by location in a lineup

1. Introduction

Lineups offer an important opportunity for police to build evidence against a suspect. Wall (1965) described a police lineup or an identity parade as any procedure where more than one person is presented to the witness for the purpose of identification. Given the evidential power of a positive identification of a suspect from a lineup, it is essential that the validity of the procedure can be relied upon. Yet, “scientific eyewitness researchers have shown that certain methods of conducting lineups are particularly likely to promote false identifications of innocent suspects” (Wells et al., 1998; 604). What lineup procedures have been identified as potentially biased against innocent suspects, and what can be done to offset this bias?

Relative Judgment: Wells (1984) made the point that eyewitnesses tend to choose the person from the lineup who looks most like the culprit in comparison to the other members. This sounds reasonable until one considers the possibility that the actual culprit may not be present in the lineup. The likelihood then is not that the eyewitness refuses to make a selection, but chooses an innocent suspect. The recommendation made in Wells et al (1998) (and accepted as an official Scientific Review Paper by the American Psychology/Law Society) was that the witness should be warned that the culprit may not be present, and that the suspect should be similar to the foils in appearance. Clark (2005) reported that the present/absent instruction reduces mistaken identity when the culprit is absent but also reduces correct identification when the culprit is present.

Subtle Communication: The lineup has been analogised to a type of experiment. The benefit of thinking about it in this way is that the literature on problems in experimental validity can then be considered in the context of thinking about lineups. A known problem in psychological experimental research is leaking of the hypothesis to the participant. Fanselow (1975) noted that police officers may inadvertently, subtly and non-verbally, give indications of the suspect they want selected from a lineup. Thompson (1995) reports that subtle communication from the foils to the eyewitness on the suspect's identity may occur, and protection against such non-verbal communication does not exist. Double-blind procedures need to be used in lineup procedures so that the person conducting it does not know which member of the lineup is the suspect. The witness should also be informed that the person conducting the lineup does not know which person in the lineup is the suspect.

Lineup structure and presentation: The suspect should not stand out in the lineup as being different from the foils. The witness needs to choose the suspect because of true recognition rather than because of some artificial aspect of the lineup. For example, the witness should not choose the suspect because s/he is the only person present to superficially match a verbal description given at an earlier time by the witness, or because s/he is the only one wearing similar clothes to those that the culprit was reported as wearing.

Given these types of problems, Lindsay and Wells (1985) have designed an alternative lineup system, a sequential one, which they argue can reduce false positives associated with the simultaneous lineup. In the sequential lineup, "witnesses view each lineup member individually and decide, before seeing another lineup member, whether or not the person is the criminal. Once a decision is made, the witness is not allowed view that lineup member again" (Lindsay et al., 2009; 14). They argue that the sequential lineup's superiority has led its increasing "adoption … by police" (ibid.; 19). Malpass, Tredoux and McQuiston-Surrett (2009a) however have questioned the evidential basis for the claim that sequential lineups provide a significant resolution to the problems associated with simultaneous lineups. They acknowledge that the use of sequential lineups is growing but not, they suggest, on the basis of grounded research but aggressive marketing by a number of researchers – "The wholesale promotion of the sequential lineup to criminal justice officials has had the desired effect in several jurisdictions" (Malpass et al., 2009a; 26). In the midst of this spirited debate on the validity and flaws associated with simultaneous and sequential lineups, a third position has been proposed by Brewer and Palmer (in press). They argue that neither lineup mode is likely to produce acceptable accuracy rates and more focus should be on the development of new, more effective procedures.

Our minor contribution to the debate is to begin by noting that while sequential lineup use is increasing (Beaudry and Lindsay, 2006), simultaneous lineups remain the default and widespread mode of choice for police investigative procedures. Therefore it is vital that researchers must continue to scrutinise and uncover the shortcomings of the workings of this method. In the heat of debates such as that between the Lindsay lab group versus the Malpass one (cited above) on current methods is often forged precise ideas about the reform or replacement of the system in place. As Brewer and Palmer note (in press), there has been an enormous amount of debate on lineup mode, a reflection of the importance academic researchers attribute to it. And as Malpass et al. (2009b) have noted, academic research that directly impacts on policy implication, and especially on police investigative techniques imposes greater demands and responsibilities on researchers – "academic researchers generally do not encounter the complexities of policy development. Ordinarily they are free to follow their own lines of inquiry … without responsibility to identify and explore directions not taken" (pp 1-2). Problems with the simultaneous lineup, and potential for its change remain an urgent area of investigation for academic researchers.

If we reflect on what is involved in a simultaneous lineup, it is clear that the simultaneous element is in the *presentation* of an array of people or photos. What it cannot mean is the simultaneous *processing* of all the elements in the array since it would be impossible for an individual witness to complete such a processing task all at once. From this banal observation comes the implication that even a simultaneous presentation involves a sequential - all be it micro-sequential - processing of say, five faces, typically. Our hunch is that this sequence, the order of viewing of each member of an array, is very unlikely to be random, in a scientific sense, or even in the everyday sense of being pattern-less. Rather, for people in the western world, faced with an array of items to process, the default mode of processing will be from left-to-right and, where relevant, top-to-bottom. Of course, some individuals may show idiosyncrasies and decide they will work from left to right. This, we would guess, would be the exception and would have to involve a conscious over-ruling of the automatic mode of array-processing. This guess could be tested empirically via eye-tracking hardware, though it would seem to be a reasonable default assumption. If it is valid, it means that for the majority of witnesses in a lineup, the first person they will scan will be the person on the extreme left of the array, and the last person will be the person on the far right.

This likely order of viewing for witnesses in western countries may be utterly trivial or it may be significant. We have not found a literature within psychology which offers any direct suggestion that position in an array is significant. However we do note the widespread acceptance in marketing, in the area of product placement, that people tend to focus more easily on objects to the right of their field of vision. Many advertisers design their advertisement to place the product logo on the right hand-side, in the belief that the most recent content the eye meets will create a lasting impression, see Kress and van Leeuwen (1996). An article in the Economist (2008) entitled ‘How the Brain Buys’ argued that the “right-hand-side of an eye-level selection is often considered the very best place [for product placement on store shelves], because most people’s eyes drift rightwards”, Economist Dec 18th, 2008. Could the same rightward tendency extend to, and undermine the correct identification of an offender in a lineup? If so, this would mean that a human bias – perhaps derived from cultural rules about reading - makes the lineup structure inherently unfair as suspect position in a lineup could be associated with unequal amounts of attention by the witness seeking to make a culprit identification. The current study examines the proportions of correct identifications per position by witnesses who had viewed a simulated crime, and were subsequently asked to identify the culprit from a five-person lineup.

2. Method

Materials:

A simulation of a crime (handbag snatch) was carried out and recorded; a professional cameraman was hired, and a venue and actors were chosen. Following editing, the crime simulation (including build-up) lasted for approximately two minutes (DVD available). The offender who snatched the handbag was on screen for only a few seconds. A DVD player and television were used to show the crime to participants.

Participants:

The participants were a convenience sample of 84 (1:1 gender ratio) undergraduate students selected from their campus. The age range was 18-23 years with a mean age of 20.48 years and a standard deviation of 1.22 years.

Offender and Foils in Lineup:

This group consisted of five males with an age range of 17-18 years, a mean age of 17.6 years (standard deviation of age = 0.55). (See Appendix A for photographs.) The selection of the foils was based on a number of principles, for example closeness in age, similarity in height (all approximately six foot tall), of muscular build, of European ancestry and Irish nationality, dark hair colour, and wearing casual contemporary dress. The foils (and the culprit) were selected from a local secondary school and were all members of that school's rugby team thus accounting for their similar build.

Procedure:

Ethical clearance was obtained from the Human Ethics Research Committee of the institution of the researchers. Participants were told that they would be shown a video of a short film; and that they would be asked a few questions after viewing the clip. The participants were not informed about the content of the film so as to make it as realistic as possible. On viewing the video, they were asked to indicate via a scale from 1-10 (with 1 being not at all confident, and 10 being very confident) their degree of confidence in subsequently picking the offender from a lineup.

A day and time was then arranged (no more than a week later) for the participant to return and try to select the suspect from a live lineup which included the 'culprit' and four foils. A simultaneous lineup was used where the suspect and foils stand side by side. The witness entered the room by a door which faced towards the centrally placed member of the lineup (position 3). They were told that there was no time limit and they could move left or right if they wished. (Most moved to face the lineup member in position 1 and then gradually shifted right offering anecdotal support for a default left-right order in array processing.

The position of the culprit in the lineup was manipulated to test its impact. The culprit spent half of the 84 trials standing in the first position of the line up (extreme left); in the other 42 trials, his position was equally distributed among position 3 (centre), position 4, (centre right) and position 5 (extreme right), see table 1. He was never placed in position number two (centre left)[1].

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[1] In choosing positions for the offender, an obvious possibility was to place him in each of the five positions for an equal number of trials. However, because the study was exploratory in relation to positioning, we pursued a hunch that the main effect might be non-linear rather than linear, and that the impact of position would be on 'first position [extreme left]' versus 'the rest'. To ensure suitable statistical power for our analysis, we therefore placed the culprit in the extreme left position for 50% or 42

Table 1 ABOUT HERE

3. Results

How accurate were the participants in correctly identifying the culprit? With five possible positions, by chance one would expect a success rate of 20%. Of 84 lineup trials, therefore, one would expect about 17 trials to be successful. The culprit was actually selected 22 times, and failed to be identified 62 times, giving a success rate of 26.2%. This is not significant at the 0.05 level; in fact, p=0.14. (The minimum number of successful trials required for statistical significance was 24 out of 84.) Those making successful identifications were more confident about their choice, with the correct group averaging a confidence score of 6.6, while the incorrect group's mean was 5.7. The probability of this difference approached but did not reach significance (p=0.06).

However, the main focus of the study was on the effect of position. Was there an association between the position of the culprit and the proportion of correct identifications? In table 2, the actual (observed) number, expected number and percentage of correct and incorrect identifications made in each position are presented. (The reader is reminded that the culprit was placed on the extreme left, that is position 1, 50% of the time, and never in position 2.)

Table 2 ABOUT HERE

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of the trials, and the shared the remaining trials among the centre, centre right and extreme right positions.

The association between position and identification success/failure is clearly very strong. The chi-square likelihood ratio value = 22.8, $p < 0.01$, df = 3. Pairwise comparisons of cell proportions (at the 0.05 significance level, with Bonferroni correction for multiple comparison) indicated that the percentage of selections made for position 1 and position 3 differed significantly from one another, and that the percentage of selections made for position 1 and position 4 differed significantly from one another. The proportion of selections of position 5 did not differ significantly from positions 1, 3 or 4. The proportions of selections for positions 3 and 4 did not differ significantly from each other.

Figure 1 presents the difference graphically between the success rates of the four positions.

Figure 1 ABOUT HERE

The positions selected in all the cases of failed identification can also be examined. Figure 2 presents the percentage of times each of the positions was selected when an incorrect identification was made.

Figure 2 ABOUT HERE

The under-selection of the culprit when in position 1 is visually demonstrated in figure 2. Another way to describe this bias is that although the culprit is placed in position 1 in 50% of all trials, and in either positions 3 and 4 in total 33.3% of trials, position 1 was only selected by the identifiers in 6.0% (n=5) of trials, while positions 3 and 4 were in total selected in 66.7% (n= 56) of trials.

4. Discussion

The study was an exploratory one examining whether positioning in a lineup array could have an impact on frequency of selection. The rationale that there might be such a bias was based on an assumption about people in the west attending to an array in a non-random and typically left-to-right sequential order. The claims of a similar bias in product selection of goods on store shelves added a little further weight to the study rationale. It was examined whether the same bias might be transferred to suspect-selection in lineups and there did appear to be evidence that position in a lineup array is associated with varying chance of witness selection. Assuming that the results of this study are generalizable, it adds to the doubts about whether selection of a suspect from a simultaneously-presented lineup is based on true recognition factors alone. It suggests that an artificial and arbitrary aspect of the lineup, namely lineup position, can influence suspect-selection to a significant degree.

What steps are needed to prevent the possible distortion of evidence in criminal cases using lineups? Obviously replication of this study is essential to check whether the association between position and selection (and specifically the rejection of the far left position, and preference for centre and centre-right) is a reliable, or a rogue finding. A replication that demonstrated that people who had learned to read in for example an Arabic culture - processing an array by default from right to left - tended to show a complementary bias would of course be very powerful. However given that the data showed a preference for selection from the centre and centre-right, but not extreme right of the array, a cumulative pressure on selection towards the right is not supported and thus weakens the left-right reading style hypothesis. A tentative and alternative speculation is that the position bias might be better described as a centring pressure, and that more attention is given to those clustering around the centre. However in this study design, the culprit was never placed in the centre-left position so that possibility cannot be rigorously tested.

However, it is clear from the data that there was a significant association between location and selection. What steps could be taken to counter this? Clearly the police should not adopt a rule against placing the suspect in any particular position (although according to these data, the defence side should prefer to keep their client out of the centre and centre-right position, while the prosecuting side should try to avoid placing the suspect in the extreme left position), as such a practice, formal or informal, would certainly become widely known. At the very least, the position of the suspect should be chosen by a formal randomization procedure. Where there are multiple witnesses seeking to identify the same suspect, the random selection of position should be re-run before each lineup. It might be feasible, if time-consuming, to rotate the positions of the suspect and foils a number of times, and to ask the witness to defer their selection until this multiple rotation has occurred. Or at the very least, the witness him/herself could be asked to alter their viewing position to ensure some change in perspective.

As noted above, Lindsay and Wells (1985) and Wells et al (1998) have argued for the use of sequential lineups – where each member of the group of foils and suspect are viewed individually and separately - instead of simultaneous ones, as in the regular lineup where the witness views the group of foils and suspect all at once. However, there are known primacy and recency effects in the processing of, and attention to information cues, and effects like these cannot be ruled out with sequential lineups. Indeed as we have argued, a simultaneous presentation of the lineup array nonetheless involves a sequential processing of the members of the array.

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Appendix A: Photographs of Lineup foils and Suspect

Foil 1

Foil 2

Foil 3

Foil 4

The Suspect