Guided Memory in Eyewitness Identification

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Similarity between study and test environments enhances memory performances, and reinstatement of the study environment through recall instructions increases the accuracy of performance in new test environments. In the present study, 72 witnesses (13 men, 59 women) of a staged vandalism viewed photographic lineups 5 months after the event. Some witnesses (VP) had previously viewed corporeal lineups in which the vandal was present. Others (VA) had viewed lineups from which the vandal was absent. Still others (NL) had viewed no previous lineup. The witnesses individually viewed five lineup photographs, simultaneously displayed. One half of each of the three groups was given simple instructions that asked whether the vandal's photograph was present and, if so, to identify it. The other half of each group was given these instructions following an interview guiding recollection of the vandalism, the vandal, and the witnesses' reactions to them. Recognition accuracy was greater for guided memory witnesses (60% vs. 40%). The VP witnesses chose more often, were more often accurate, and were more confident than were witnesses from the other groups. The guided memory procedure enhanced the accuracy of identification after a moderate delay without biasing the witnesses' recollections about the offender.

It is well known that human recognition performances are imprecise and easily influenced by situational constraints. Eyewitness identification is of uncertain accuracy at best and profoundly wrong and harmful at worst (Buckhout, 1974; Goldstein, 1977; Levine & Tapp, 1973; Loftus, 1976; Malpass & Devine, in press; Tapp & Levine, 1977; Wells, 1978; Woocher, 1977). It has been suggested that reliance on eyewitnesses' identification be reduced in favor of stronger evidence, for example, concrete physical evidence (Goldstein, 1977). The identification testimony of eyewitnesses, however, has an intuitive and commonsense appeal that makes its continued use highly likely (Sobel, 1972). Thus it is appropriate to find means of strengthening techniques for obtaining, evaluating, and using eyewitness testimony so that accuracy can be enhanced and errors minimized or detected. Two lines of research from cognitive psychology offer directions:

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and Goldstein (1978), and Patterson and Baddeley (1977) found that abstract study tasks produce better recognition than do physical feature tasks. Encoding strategies, however, are of little interest in the eyewitness identification context because they occur at a point in the history of a criminal offense that is not accessible to study. (See Wells's 1978, discussion of estimator and system variables.) Mueller and Wherry pointed out that task manipulations are of greater interest at the time of a subsequent identification than at the time of an offense because only those tasks at the time of an identification can be manipulated and evaluated during the investigation of an offense. Fortunately there is reason to believe that manipulations of instructions or of orienting tasks similar to those used to increase depth of processing during encoding could improve recognition performance if applied at the time of the recognition test. Recent thinking about encoding and retrieval processes views them as similar (Craik, 1979). The implication is that retrieval strategies structured in ways similar to effective encoding strategies may yield improved memory performance. Mueller and Wherry, however, used an abstract (deep processing) study task at the time of a recognition test and found only an increase in false alarms.

In particular, if information about the context of an offense can be addressed at the time of remembering, access to recollection of the initial event (episode) may be improved. Watkins et al. (1976) presented data supporting this contention for face recognition, where context was defined as faces or phrases paired with critical faces in a paired-associate task. Other research has shown that the kinds of factors that can be called context factors and that can be used to facilitate remembering are much broader than are contextual items in a word or object list. Smith et al. (1978) showed that a number of factors, including the physical environment in which the study and test are conducted, can form a context and provide information for encoding and retrieval processes. Smith (1979) showed a very strong enhancing effect on recall by returning subjects to their original learning environment for testing (the environmental reinstatement effect). He also found that when subjects are tested in an environment different from the study environment, instructions to use their memory of the study environment to facilitate recall were as effective as returning them to the actual study environment.

When adapted to the process of obtaining eyewitness identifications, these lines of research suggest that when recognition is requested after long periods of time, the accuracy of the witnesses' recognition can be enhanced by reinstating the context of the witnessed offense through verbal instructions or descriptions. This was the rationale underlying the construction of our guided memory interview in which witnesses were asked to recall many details about the setting and events of a simulated crime observed 5 months earlier. It would be beneficial if police could use reinstating contextual information to improve identification performances, especially after long delays between a witnessed event and a request for an identification. The present study was undertaken to investigate the effect of the guided memory interview on rates of choosing and accuracy.

Method

Witnesses and Their Prior Experience

The witnesses were 72 students (13 men, 59 women) who had participated in an earlier experiment on eyewitness identification (Malpass & Devine, in press). All subjects witnessed a vandalism staged during a classroom demonstration. During a pause in the demonstration, a confederate of the experimenters (a 17-year-old man) entered the classroom, spoke briefly with the instructor, and was asked to wait to the side, next to a rack of electronics equipment. The confederate (the vandal) changed the dial settings on the equipment. The instructor asked the vandal to leave the apparatus alone. Twice more, however, the confederate changed the dial settings, and the verbal response of the instructor increased in anger and insistence. The vandal responded to the last of these by shouting an obscenity at the instructor, pushing the electronics panel to the floor, and running from the room through a rear door. The vandal was visible to the audience for a total of 85 sec. Corporal lineups were held on the following three evenings, and 100 of the student witnesses (350 total) voluntarily appeared to view a lineup. Lineups were composed of four foils and either the vandal (when the vandal was present in the lineups) or a substitute (when the vandal was absent from the lineups). The foils remained constant across both of these lineup conditions. Witnesses were not told whether their choice had been accurate.
Five months later, the following three groups of witnesses were contacted and their cooperation solicited: (a) those who witnessed the vandalism but who observed no lineup (NL), (b) those who witnessed the vandalism and subsequently observed a corporeal lineup from which the vandal was absent (VA), and (c) those who witnessed the vandalism and subsequently observed a corporeal lineup in which the vandal was present (VP). In the previous study, the assignment of witnesses to VA or VP conditions was random; both of these groups, however, were initially volunteers.

**Lineup**

The lineup in the present study was a photo-lineup composed of five 20-cm × 25-cm black and white, head and shoulder photographs of members of the lineups from the previous study (Malpass & Devine, in press), including the vandal and the four distractors. Lineup participants were chosen who were similar in height, body build, hair color, and hairstyle. All were dressed similarly (i.e., wore crew-neck sweaters).

**Lineup Procedures**

Eyewitnesses were escorted individually from a waiting area into a small room (approximately 3.1 m × 2.6 m) and seated at a desk. The lineup photographs were displayed on an easel at an angle of approximately 45° to the desk. The photographs were covered with a cardboard mask that contained the numbers 1–5 and that was later lowered to a position below the faces, exposing them simultaneously and indicating their numerical positions in the lineup, 1–5, left to right. In the course of obtaining judgments from the eyewitnesses, the positions of the photographs were systematically varied so that each photograph appeared in each position equally often. The lineup instructions were printed on a single sheet of paper and placed on the desk in front of the witnesses. When the witnesses had read the instructions, the cover was removed from the photographs and placed below them. The witnesses were allowed as much time as necessary for their choices. When their judgments were made, the witnesses were escorted to a nearby area, where they completed a postexperimental questionnaire.

**Instructional Manipulations**

**Simple choice.** One half of each of the three types of witnesses were randomly assigned to a simple choice task. These witnesses were asked to read the lineup instruction and then make their identifications. The instruction read: “The person who pushed over the electronics equipment during the EEG demonstration may be among the 5 individuals in the lineup. It is also possible that he is not in the lineup. Look carefully at each of the five individuals in the lineup. If the person you saw push over the equipment is not in the lineup, circle 0. If this person is present in the lineup, circle the number of his position below.” The witnesses were provided with six options (0–5) from which to choose.

**Guided memory.** The remaining half of the witnesses in each of the three groups were reminded of the events on the evening of the vandalism in a detailed guided memory interview in which their feelings, their memory of details of the room, their memory of the vandal, and their immediate reactions to the events were explored. The interview, as presented to the witnesses, follows. The sections in parentheses are notes to the interviewer, and those in brackets are facts known to the interviewer; these latter sections were read either to confirm a correct recollection or to correct an incorrect one.

I would like to help you remember what happened last December 4th when you attended the EEG demonstration in CL-200, and when the vandalism staged for this experiment took place. I will try to remind you of the setting and the events that occurred that night. Sit back in your chair, be comfortable and try to visualize the room, the things in it, and the events that happened as I remind you of them. Close your eyes if it helps you to visualize.

Were you a member of my (RSM's) class, or did you come to the demonstration from another class? Do you remember where you were sitting that evening? Close to the front? Back? Off to one side? Which side? (If no response, remind them where they were sitting.) Did you come to the demonstration with another student? (If so, ask them who it was. Ask them to visualize the two of them sitting in the classroom. Was this person sitting on their left or their right? Was there anyone sitting on the other side? If so, ask them to try to visualize that person. If witnesses came to the demonstration with no one else, ask if there were people sitting next to them. If so, ask them to visualize them. Do they know who they were? Ask them to visualize themselves sitting in the row with these people.)

Try to visualize the way the room was set up for the EEG demonstration. Tracings were taken of a person's brain waves by a recording machine and displayed on the rear projection screen at the front of the room. Do you remember where the person whose brain waves were measured was sitting? On the left of the room, or the right? [On the right.]

The instructor was standing by the machine that was doing the recordings. At the left side of the recorder there was a video camera and a light on a stand. And further to the left, what was there? [The electronics panel that was pushed over was to the left of where the instructor and the EEG equipment were located.] Can you visualize it?

When the instructor finished one part of the demonstration the lights in the room were turned up, and he disconnected one bit of equipment from the EEG machine. Just after he did that, the vandal, the student who pushed over the electronics panel, came in. Do you remember which door he came through, the one at the left or the right? [The right]. He stopped to talk with the instructor and was told to wait off to the left. Did you see him standing by the electronics equipment? Do you recall what he did that got the instructor to yell at him? [He began to play with dials or switches on the electronics panel.] Try to visualize him standing there.

Can you visualize the moment he pushed over the apparatus? Do you remember how you felt or what you were thinking? Can you remember your reaction? Were you watching as the vandal ran out? Try to

Try to picture the vandal as he stood at the front of the room. Can you remember about how tall he was? Can you visualize the clothes he was wearing? What color was his shirt? [Blue.] Try to visualize him. Can you picture him standing there? Try to picture his appearance. Was he a pleasant looking person? Did he look honest? Did he look like a kind of person who would smash valuable equipment?

Now I would like you to read the lineup instructions. After that I will show you photographs of 5 individuals, and ask you to make your judgment as instructed in the lineup instructions.

After this interview, the witnesses read the lineup instruction and made their identifications.

Postexperimental Questionnaire

The postexperimental questionnaire contained questions that asked the witnesses to state the lineup instructions, rate the realism of the photographic lineup, rate their confidence that the vandal was in the lineup, and indicate the degree to which they wanted to cooperate with the person in charge of the lineup.

Results

Witnesses' Self-Selection

The witnesses of the present study were a self-selected subset of those who witnessed the original vandalism. A number of authors (Doob & Kirshenbaum, 1973; Wells, 1978) have argued that self-selection is an ecologically valid procedure because witnesses in police investigations are both self-selected and selected for cooperativeness by the police. Malpass and Devine (in press) found that the self-selected volunteers in the earlier study (from which the VP and VA witnesses in the present study were drawn) had mean scores on “Motive to comply with the experimenter” that were predominantly positive. The same occurs with the present witnesses. The overall mean on this rating scale, scored from -3 to 3, was 1.50 (SD = 1.71). A large majority of the witnesses scored in the positive region of the scale. Thus witnesses in this study, as witnesses in police investigations are presumed to be, were motivated to comply with those in charge of the lineup.

Guided Memory and Prior Experience

The effects of the guided memory manipulation and the prior experience of the witnesses on the rate at which witnesses make a lineup choice are presented first, followed by effects on identification accuracy, the kinds of errors made, and witnesses’ confidence in their identifications.

Choosing

The percentage of witnesses making a lineup choice is presented in Table 1. There was no overall difference in rate of choosing between the guided memory and the simple choice tasks, but the comparison between the data from the VP witnesses (95%) and the combined data from the VA and NL witnesses (76%) was significant (tested by a z test for the difference between independent proportions, $z = 2.50, p = .012$). The difference between VA and NL witnesses was not significant.

Accuracy

The percentage of witnesses making an accurate identification is also presented in Table 1. Guided memory led to greater ac-

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Note. VP = vandal present; VA = vandal absent; NL = no lineup.
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Accuracy (60% correct identifications) than did simple choice (40% correct identifications; z = 1.73, p = .042, one-tailed). VP witnesses had a greater accuracy rate (73%) than did VA and NL witnesses combined (40%; z = 2.81, p = .0025). Two kinds of errors are possible in this study: false identification and false rejection of the entire lineup. The three groups of witnesses made these errors with the following frequencies: false identifications, VP = 5, VA = 9, NL = 9; false rejections, VP = 1, VA = 6, NL = 6. A comparison can be made between VP witnesses and either VA or NL witnesses by Fisher’s Exact Probability Test using raw frequencies. The observed pattern is significantly different from chance (p < .05). VP witnesses made more false identifications than false rejections. This is consistent with their greater frequency of choosing. Overall, 64% of the errors were false identifications, whereas 36% were false rejections. The guided memory and simple choice groups both displayed the two errors in exactly these proportions.

Confidence

The mean confidence the witnesses had that the vandal was actually in the lineup is as follows: VP = 5.55, VA = 4.0, NL = 3.43 for guided memory; and VP = 4.36, VA = 3.0, NL = 3.43 for simple choice (the higher numbers indicate greater confidence). The interaction of prior experience and instruction is significant, F(2, 66) = 16.85, p < .001. Simple main effects were tested, and the following were significant: The effect of guided memory on confidence was significant for VP witnesses only, F(1, 66) = 5.37, p < .025, and the effect of the witnesses’ previous experience was significant for both the guided memory condition, F(2, 66) = 9.975, p < .005, and for the simple choice condition, F(2, 66) = 3.88, p < .05. The VP witnesses are again clearly different from the other two groups. The correlation between the witnesses’ confidence and the accuracy of their identifications was r(70) = .522, p < .001.

Discussion

The purpose of the present study was to examine the effect of verbal reinstatement of context on the accuracy of identification by eyewitnesses. Context reinstatement through the guided memory procedure increased the rate of accuracy when compared with the simple choice condition. The increase, from 40% to 60% correct identifications after a 5-month delay, is a substantial improvement in recognition accuracy. In addition, guided memory had no effect on either the rate of choosing or the type of error made. The guided memory procedure is complex, and it is not possible at present to identify precisely its important attributes. It would have been desirable to have had a number of additional comparison groups for the purpose of isolating some of these attributes. It might be, for example, that simply asking witnesses to spend 5 minutes thinking about the offender and attempting to achieve an image of the offender’s face would be as effective as our interview. On the other hand, during such a period of time it would not be at all clear what the witnesses were doing, and we would suspect that they were doing for themselves some of the things that the guided memory procedure asks them to do. We agree with Craik and Lockhart (1972) that such processes can be studied only when they are externalized and made explicit and observable. With a limited number of witnesses available, we decided that for an exploratory study it would be best to compare a simple choice and the guided memory procedure to see if there was any effect to be explained, leaving for subsequent research the refining and analysis of exactly what the causative factors in the effect might be. The limitation of sample size also led us to omit a VA lineup. The danger of this omission is that it confounds a criterion shift with the guided memory procedure. Such a criterion shift would appear in the relative frequency of choices between the two experimental conditions. There was no significant difference, however, in the choosing rates of the guided memory and the simple choice witnesses (z = .88, p = .189).

Effect of Prior Experience

There were interesting differences among the three groups of witnesses viewing the photo spread. VP witnesses were consistently
different from the other two groups. They chose more, were more accurate, were more confident that the vandal was present, and their errors contained a higher proportion of false identifications than false rejections. These differences are not surprising in view of their different prior experience. In addition to having seen the vandal twice before (once during the vandalism, once during the lineups in the first study), the VP witnesses chose more than did the VA witnesses in the previous study (92% vs. 53%, respectively), and these choices were made with a high degree of both accuracy (78%) and confidence. Thus when the VP witnesses confronted the photo spread in the present study, they attempted more identifications (more of which were accurate) than did either of the other groups of witnesses and continued to show higher levels of confidence. The VP witnesses were the only group who had both been witnesses earlier and seen the vandal in an earlier lineup. Apparently having been a witness earlier (VA witnesses) does not alone produce a differentiation from the NL group, who saw the vandalism but did not participate in a lineup.

Confidence

The correlation between the witnesses’ confidence and the accuracy of their identifications, \( r(70) = .522 \), is in contrast with nonsignificant confidence–accuracy relationships reported elsewhere in the literature (Brown, Deffenbacher, & Sturgill, 1977; Leippe, Wells, & Ostrom, 1978; Wells, Lindsay, & Ferguson, 1979). There is little consistency in the way the confidence–accuracy relationship has been determined. Some studies have used data only from witnesses making a lineup choice, and others have aggregated data across offender-present and offender-absent lineups. Malpass and Devine (in press) reported confidence–accuracy correlations separately for offender-present and offender-absent lineups using data from both choosers and nonchoosers. For offender-present lineups, when the same instruction as in the present study was used, the confidence–accuracy correlation was .95, whereas for offender-absent lineups, the correlation was –.85. The aggregate confidence–accuracy correlation was nonsignificant. More investigations, systematically varying important features of the construction of the witnesses’ task, are needed before the confidence–accuracy relationship can be understood.

There is substantial agreement—with which we also concur—on the applied utility of witnesses’ confidence as an indicator of their accuracy: Confidence does not imply accuracy, nor does it discriminate between accurate and inaccurate witnesses. If it is generally true that when data are aggregated across offender-present and offender-absent lineups, the confidence–accuracy relationship is nonsignificant, then the relationship is of no applicable utility. If the relationship is strongly positive only when the offender is in fact present (as in both the present study and Malpass & Devine, in press), it is of equally little use because it assumes what is to be discovered: that the offender is present. Only if it were known in advance that the offender was present would there be any evidence that confidence was useful as an indicator of accuracy, and that is the one thing that cannot be known in advance. If it were to be known, there would be no need for eyewitneses’ identification.

Guided Memory and Identification Bias

There are two possibilities for bias associated with the guided memory procedure: biasing the witnesses’ memory of the events and biasing their lineup identification. The incorporation of new information—presented during questioning about an event—into the eyewitneses’ memory of the event has been demonstrated by Cole and Loftus (1979), Gentner and Loftus (1979), Loftus (1975a, 1975b), Loftus, Miller, and Burns (1978), and Powers, Andriks, and Loftus (1979). The possibility for bias would be greatest when concrete information about the events of a crime was not available or when witnesses’ reports were not in agreement. This bias would be the most troublesome when it was important to know pre-

\footnote{For neither the VP nor the VA witnesses was there a significant difference in their accuracy in the present study, regardless of whether or not they were accurate when they viewed the corporeal lineup 3 months earlier.}
cisely what happened as opposed to who did it. Whereas in the present study we had exact knowledge of the events, investigators would have to rely heavily on the descriptions by eyewitnesses to construct a guided memory procedure. Care should be taken not to present leading questions or specific unverifiable information in the context of the interview.

Fortunately the potential for bias is not particularly great for the guided memory procedure when used for person identification. In contrast to providing new semantic information that may subsequently appear in semantic reports, as the previous studies have demonstrated, the guided memory procedure uses semantic information about the context in which an offense was observed as a source of associative cues for facilitating retrieval of information about the physical appearance of the offender. For a bias to be introduced into witnesses’ subsequent identifications, information about the defendant’s physical appearance would have to be included in the guided memory script. Thus as long as descriptions of both the offender’s and the defendant’s appearance are omitted and the contents of the guided memory script are carefully limited to information about the context of the offense, to descriptions of the offender’s behavior, and to instructions to recall the offender’s physical appearance, there seems little possibility for biasing witnesses’ subsequent identification.

It may be possible to probe witnesses’ memory without providing them with new information. Investigators could have witnesses generate private responses by asking questions that do not themselves provide information, and they could instruct witnesses to answer silently (only to themselves). From a theoretical point of view, the associations that witnesses would use to retrieve the image of an offender’s face would be self-generated on the basis of private information, without contamination by the investigators.

Providing an opportunity for eyewitnesses to rehearse extensively their recollections of a witnessed offense increased their accuracy in identifying the offender after a substantial interval, without increasing identification errors. Although the important causative factors are not precisely known, such strategies may be potentially useful for police investigations.

References


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