

Applied Aspects of the Instructional Bias Effect in Verbal Overshadowing

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SUMMARY

Previous studies have demonstrated that instructional manipulation of a participant witness's response criterion on a description task can lead to verbal overshadowing in performance on a subsequent lineup identification task. The current set of experiments attempts to replicate this instructional bias effect in verbal overshadowing and extend the paradigm to include variations in lineup presentation format (Experiment 1) and repeated descriptions prior to identification (Experiment 2). The instructional bias effect is found to persist despite the 'sequential' presentation of lineup members and across repeated recall of a target face 1 week later. Furthermore, both experiments demonstrated that incorrect details generated by participants were predictive of subsequent inaccuracy on the identification task. Both theoretical and applied aspects of the instructional bias effect in verbal overshadowing are discussed. Copyright © 2002 John Wiley & Sons, Ltd.

Verbal descriptions of a perpetrator represent a very important component to both the preliminary and the long-term investigation of a crime. In fact, law enforcement officers generally attempt to obtain descriptions rather swiftly following onset of the investigation, and these descriptions are often distributed to officers for the identification of potential suspects in the vicinity of the crime. In addition, person descriptions subsequently provide a means for estimating the congruence between a witness's initial recall of the perpetrator and the physical characteristics of the suspect that is eventually apprehended. Although often discounted by psychological research (Pigott and Brigham, 1985; Wells, 1985; Yarmey, 1986), it is this congruence that the US Supreme Court has advocated as an indicator of the validity of eyewitness testimony in *Neil v. Biggers* (1972). Owing to the notion that verbal descriptions represent at least some characteristics of person memory, however, researchers have frequently encouraged their use when constructing lineups for eyewitnesses (Luus and Wells, 1991) and when conducting subsequent tests of lineup fairness (Brigham *et al.*, 1999). It is the peculiar nature of this relationship between the verbal description and subsequent lineup identification of a perpetrator that the current studies (and this special issue) seek to address.

A variety of studies have examined the relationship between description and identification performance with respect to eyewitness memory for faces. In his review, Sporer (1996) notes that although verbal description and visual identification performance appear

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to be largely unrelated, nevertheless they are generally influenced by many of the same factors. For example, person descriptions will vary based upon conditions at encoding (e.g. alcohol consumption, lighting, stress, weapon focus, etc.), the length of the retention interval between encoding and recall, and various conditions at retrieval (e.g. leading or suggestive questioning, co-witness or misinformation effects, etc.), similar to that of identification performance. Whereas such manipulations tend to influence the quality of the memory representation, the particular overlap of information accessed at the time of description versus identification may be quite separable. In particular, a description task appears to encourage the use of a feature-based decoding strategy (e.g. Wells and Turtle, 1988), and to largely neglect other non-verbalizable, configural information in the face (e.g. Diamond and Carey, 1986). Identification, on the other hand, appears to involve greater attention to configural aspects, although distinctive featural attributes are also likely to influence performance as well (cf. Cabeza and Kato, 2000). This minimal degree of covariance for featural information across description and identification tasks may well explain the small correlation between description and identification performance frequently observed across studies (Sporer, 1996), as well as the stimulus-based effects noted by other researchers (see Wells, 1985).

Although the description–identification relationship appears to be rather small, recent studies have demonstrated that the act of generating a verbal description can directly influence subsequent performance in a lineup identification task. In particular, research on the *verbal overshadowing (VO) effect* has furthered researchers' interests in the curious relationship between descriptions and identifications. The phenomenon, first observed and formally named by Schooler and Engstler-Schooler (1990), demonstrates that when witnesses provide a verbal description of a face, this interferes with their ability to subsequently identify the target face from a set of similar distractors (see Schooler *et al.*, 1996, 1997, for reviews). The general effect has been replicated on numerous occasions, and in a recent meta-analytic review we (Meissner and Brigham, 2001) noted a small, yet significant, VO effect across studies ($N=2018$). Overall, the effect indicated that participants who described a target face were 1.27 times more likely to later *misidentify* the face from a lineup containing similar distractors when compared with participants who did not generate a description prior to identification.

Interestingly, previous studies have varied in demonstrating *positive* (Chance and Goldstein, 1976; Mauldin and Laughery, 1981; McKelvie, 1976; Read, 1979; Wogalter, 1991, 1996) versus *negative* (Dodson *et al.*, 1997; Fallshore and Schooler, 1995; Ryan and Schooler, 1998; Schooler and Engstler-Schooler, 1990; Westerman and Larsen, 1997) effects of verbalization on later recognition/identification performance. This variability in effects was observed even among early studies of interpolated recall (see Kothurkar, 1965). Given that, to a certain degree, both description and identification performance share a featural component, descriptions may carry the potential to produce rather biasing effects on subsequent attempts at retrieval by way of reliance upon erroneous characteristics. Further, research on eyewitness memory has indicated that such recoding (or misinformation) effects can emanate from both external (experimenter-provided) and internal (self-generated) sources (Ackil and Zaragoza, 1998; Loftus and Ketcham, 1983; Meissner *et al.*, 2001).

In conjunction with such retrieval-based effects, it is possible that the manner in which participants are asked to describe the target stimulus could mediate identification accuracy via the content or veracity of the representation that is retrieved. Consistent with such a hypothesis, a recent study by Finger and Pezdek (1999) examined differences in

identification performance for participants who received a standard or traditional interview versus a cognitive interview (a procedure that includes several mnemonic techniques shown to facilitate eyewitness recall; see Fisher and Geiselman, 1992). Although several previous studies have failed to note differences in identification performance following such interviews (Fisher *et al.*, 1990; Gwyer and Clifford, 1997), Finger and Pezdek observed that participants given the cognitive interview were significantly less likely to identify the target face when compared with those given a standard interview (47% versus 73%, respectively). The cognitive interview used by Finger and Pezdek also appeared to lower participants' criterion of responding, resulting in both a greater number of correct and incorrect details reported. (This liberal shift in output criterion on the description task stands in contrast to the two previous studies that observed only an increase in correct details for the cognitive interview condition.) It appears that this shift in output criterion may have been related to identification accuracy, as individuals who misidentified the target produced significantly more correct and incorrect details than individuals who responded accurately to the identification task.

In a recent study, we (Meissner *et al.*, 2001) further examined this effect in VO by directly manipulating participants' criterion of responding on the description task via an instructional manipulation. Specifically, our participants were asked to describe the target person they had viewed previously via one of three instructions: (a) a 'forced recall' instruction in which participants were encouraged to provide a very complete account of their memory for the target person (even to the point of guessing), and further to attempt to fill a page completely with such descriptors; (b) a 'free recall' instruction in which participants were simply asked to describe the target person to the best of their ability; and (c) a 'warning recall' instruction in which participants were told to provide a listing of only those details which they could accurately remember, and further not to report details of which they were unsure. These conditions were contrasted with that of a no-description control condition as in previous VO studies. Our results replicated the findings of Finger and Pezdek (1999) by demonstrating a significant effect of the instructional manipulation on both the quantity and quality of descriptors generated, as well as directly influencing subsequent identification accuracy. In particular, participants provided with the forced recall instruction reported significantly more correct and incorrect details in their descriptions, and subsequently performed more poorly on the identification task when compared with the free recall and warning recall conditions. This *instructional bias effect* was observed across two studies, and persisted despite increasing the delay between the description and identification tasks (Experiment 1) or providing a source-monitoring instruction at the time of the identification task (Experiment 2). In addition, we assessed the degree to which correct, incorrect, and subjective details generated by participants were predictive of identification accuracy. Across both studies, and consistent with a retrieval-based account, our results indicated that only incorrect details were useful for distinguishing between participants who correctly versus incorrectly identified the target.

The instructional bias effect was subsequently confirmed in a moderator analysis across previous VO studies (Meissner and Brigham, 2001), indicating that VO was more likely to be observed when witnesses were provided with an 'elaborative' instruction on the description task. Nevertheless, there is a need to both replicate the instructional bias effect, and to extend it to other paradigms or procedures applicable to the eyewitness area. The current set of studies attempted to provide such verification by again employing criterion shift instructions at the description task and implementing several manipulations of applied interest. Experiment 1 provided a manipulation of the lineup procedures

administered to participants following the description task. Although considerable research has investigated the effects of sequential versus simultaneous lineups on identification performance (see Steblay *et al.*, 2001), few studies in the VO literature have explored such a procedure. Thus, we assessed the effects of lineup presentation (sequential versus simultaneous) and target presence versus absence together with the instructional bias effect. Experiment 2 simulated the reality that witnesses often provide several descriptions of the perpetrator prior to attempting identification from a photo lineup. This study manipulated instructional bias on the initial recall episode, and assessed its effects one week later on a second recall episode and a subsequent lineup identification task.

EXPERIMENT 1: LINEUP PRESENTATION FACTORS

A standard police lineup involves presenting an array of six to eight faces, all of which are visible at the same time, and asking the witness to select the perpetrator based upon their memory of the event (if he or she is present in the lineup). This procedure has been termed a 'simultaneous' lineup, alluding to the fact that all lineup members are visually presented at the same time. However, Wells (1984) noted that such a procedure appears to encourage witnesses to engage in a 'relative judgement' strategy, in which their selection is based upon the lineup member who best matches their representation of the perpetrator, but relative to the appearance of other lineup members (see also Clark, *in press*). According to Wells, such a strategy (or procedure) likely promotes affirmative responses to the lineup (i.e. 'choosing'), with limited diagnosticity. To counter such a strategy, Lindsay and Wells (1985) introduced the 'sequential' lineup method in which lineup members are visually presented one at a time, and the witness is asked to generate a yes–no decision for each face. Lindsay and Wells argued that such a manner of presentation should encourage witnesses to implement an 'absolute judgement' strategy as they cannot be sure which (or how many) targets will subsequently be presented, and they are not permitted to re-view a lineup member for whom they generated a non-affirmative response.

In a recent meta-analysis assessing research on the effects of simultaneous versus sequential lineups, Steblay *et al.* (2001) noted that the 'superiority' of the sequential method appears to reside in a reduction of false positive responding when the target (or perpetrator) is absent from the lineup array. However, the authors also observed a significant reduction in correct identifications for the sequential method when the target was present in the lineup. Thus, it appears that the sequential lineup may simply reduce 'choosing', regardless of whether the target is present or absent in the array. From a signal detection perspective (Green and Swets, 1966; Macmillan and Creelman, 1991), this pattern of results could be interpreted as a conservative shift in response criterion for witnesses that are presented with the sequential lineup (see Ebbeson and Flowe, 2002). Unfortunately, eyewitness studies generally employ between-subject designs and obtain only a single observation from each participant. Thus, signal detection parameters (which rely upon multiple observations across participants in target-present and target-absent situations) cannot be computed, and a response criterion shift in the sequential method has not been confirmed.

In the current study, we investigated the instructional bias effect in VO (Meissner *et al.*, 2001) within the context of such variations in lineup presentation. As the majority of studies in the VO paradigm have employed a simultaneous, target-present lineup array (however, see Memon and Bartlett, 2002), it was important to examine whether descrip-

tions continue to influence identification performance (a) when a sequential manner of lineup presentation is used and (b) when the target is absent from the array. Given that the VO effect was not moderated by lineup presentation factors in the Steblay *et al.* (2001) meta-analysis (see also erratum, Steblay *et al.*, 2002), it was predicted that the instructional bias manipulation would influence identification performance regardless of the variations in lineup presentation.

Method

Participants

Five hundred and seventy-six students (363 females and 213 males) were recruited from an Introductory Psychology course for participation in the study. Data was collected in groups of 4 to 6 participants. Thirty additional students from a Research Methods course were recruited for the development of photographic lineups.

Materials

Three male targets were selected from a photograph database. Ten additional participants were recruited to view each target face for 10 s, and subsequently to provide a free recall description followed by a facial descriptor checklist (Wogalter, 1996). Modal descriptions were then compiled and used to select distractors for each target. Photograph lineups were constructed and presented as eight-person arrays. Twenty additional participants were recruited to provide judgements for mock witness analyses.¹ An overall fairness index = 4 was obtained, indicating no significant size (average effective size = 5.38) or bias (average functional size = 5.13) considerations (Brigham *et al.*, 1999) across the lineups. At study, participants were presented one of three target persons in a three-quarter, head-and-shoulder view. Each was wearing a burgundy-coloured sweatshirt and stood in front of a blue background. At test, participants viewed photograph lineups in which all members were standing in a full-frontal, head-and-shoulder view with a grey background. Lineup members all wore their 'street clothes' (as opposed to the burgundy sweatshirts worn in the photographs at study).

Design and Procedure

A $4 \times 2 \times 2$ between-subjects design was used to assess the influence of a recall-based criterion manipulation (free recall versus warning recall versus forced recall versus no-recall control) on subsequent accuracy of lineup identification in which both presentation format of the array (simultaneous versus sequential) and presence versus absence of the target face were varied. Thirty-six participants were included in each of the experimental conditions.

Participants were instructed that they would be viewing a stimulus for several seconds, and that later they would be asked questions about what they had seen. One of three target faces was projected onto a screen for 5 s. Immediately following the stimulus presentation, participants were given a distractor task (digit search puzzle) for 15 min. Following this

¹Doob and Kirschenbaum (1973) first introduced the notion of assessing the 'fairness' of a lineup by providing 'mock witnesses' (i.e. participants who had not actually witnessed the event or the perpetrator; Wells *et al.*, 1979) with a description of the target on the basis of which they were to select him or her from among the array of photographs contained in the lineup. If the target is selected by the mock witnesses at a rate greater than chance, the lineup is deemed structurally 'unfair' on the basis that the alternative lineup members ('fillers') are not effective alternatives to the target. Considerable research has investigated the usefulness of the mock witness procedure (see 1999 special issue of *Applied Cognitive Psychology*), and readers interested in this technique are encouraged to consult such sources.

brief retention interval, participants were either asked to provide a description of the person they saw, or were asked to complete a category listing task. Participants in the description conditions were administered the following instruction:

In the spaces below, please describe the face you saw in the slide. Use the lines below to provide details about what the face looked like. You should attempt to describe the person in sufficient detail such that someone else could identify him on the basis of the description. As describing a face is often a difficult task, it is important that you concentrate and stay focused for the next few minutes.

In addition to this standard instruction, participants in the warning recall condition were also instructed:

Prior research has also demonstrated the importance of striving for accuracy and reporting only that which you are certain you remember. You do not have to fill in all of the lines, so be sure to report only those details that you are confident of, and do not attempt to guess at any particular feature.

Finally, participants in the forced recall condition were given the following instruction in addition to the standard instruction:

Prior research has also demonstrated the importance of reporting everything that you can remember about the individual on the slide. Try not to leave out any details about the face even if you think they are not important. You should attempt to fill in all of the numbered lines below with a description of the face, even if you start to feel that you are guessing.

Upon completion of the description or category listing tasks, participants were again requested to engage in a distractor task (digit search puzzle) for 5 min, after which they were administered the lineup identification task. Participants in the sequential presentation condition were provided a form with lines numbered from 1 to 15 (although only eight faces were presented, consistent with the simultaneous condition) to ensure that participants were unaware of the number of faces to be presented. Each face was presented for 15 s, and participants were instructed to respond ('yes' or 'no') as to whether each face was the person they had viewed previously. Participants in the simultaneous presentation condition were instructed that they would be shown an array containing eight faces, and that they should mark the box on the form corresponding to the face that they saw at the beginning of the experiment. Prior to the presentation of both the simultaneous and sequential lineups, participants were warned that the person they viewed previously may or may not be present within the series. In addition, if participants could not select a face from the lineup, they were asked to indicate whether they believed the target was 'not present' or whether they were too 'unsure' of their memory for the target face to make an identification decision.

Results and discussion

Identification accuracy

Accuracy rates across the instructional bias and lineup presentation conditions are presented in Table 1. Values in the 'target-present' conditions refer to an accurate identification of the target person, while values in the 'target-absent' conditions refer to an accurate non-identification decision (i.e. a 'not present' or 'not sure' response). Unless otherwise noted, a standard $p < 0.05$ criterion was used to assess statistical significance.

Table 1. Identification accuracy as a function of instructional bias on the description task and lineup presentation format

	Simultaneous		Sequential	
	Target-present	Target-absent	Target-present	Target-absent
No recall control	64%	44%	50%	53%
Warning recall	67%	50%	61%	75%
Free recall	58%	39%	50%	64%
Forced recall	39%	25%	31%	47%
Overall	57%	40%	48%	60%

A $4 \times 2 \times 2 \times 2$ Hierarchical Loglinear (HILOG) Analysis was used to examine the influence of instructional bias (free recall versus warning recall versus forced recall versus no-recall control), lineup format (simultaneous versus sequential), and target present versus absence manipulations on identification performance (correct versus incorrect decision). Results demonstrated a significant main effect of instructional bias, $\chi^2(3) = 23.22$, $p < 0.001$, and a lineup format \times target presence interaction, $\chi^2(1) = 12.34$, $p < 0.001$. No other main effects or interactions reached statistical significance, $\chi^2s < 1.75$. Planned comparisons of the main effect of instructional bias indicated that participants in the forced recall condition were significantly less accurate in responding on the lineup identification task than all other recall conditions, $\chi^2s(1) > 8.80$, $ps < 0.01$, thereby replicating previous findings (Meissner *et al.*, 2001) and demonstrating a significant VO effect when compared with the no-recall control condition. Although participants in the warning recall condition outperformed those in the no-recall control and standard recall conditions, these differences failed to reach statistical significance, $\chi^2s(1) = 3.21$, $ps < 0.10$. As predicted, this instructional bias effect failed to interact with either target presence or lineup presentation. As displayed in Table 1, the effect of the forced recall condition was to reduce correct identifications in target-present arrays, $\chi^2(1) = 14.72$, $p < 0.001$, and to increase false identifications in target-absent arrays, $\chi^2(1) = 10.03$, $p < 0.01$, when compared with the performance of participants in the warning recall condition.

Follow-up analyses ($Ns = 288$) of the lineup format \times target presence interaction demonstrated that participants in the sequential lineup condition were significantly more accurate than those in the simultaneous lineup condition when the target was absent from the lineup array, $\chi^2(1) = 11.68$, $p < 0.01$. Although a reversed pattern appeared in the target-present conditions in which those in the simultaneous lineup condition numerically outperformed those in the sequential lineup condition, this effect failed to reach statistical significance, $\chi^2(1) = 2.35$, n.s. Nevertheless, the interaction confirms the findings of Steblay *et al.* (2001) with comparable effect sizes for target-present versus target-absent conditions ($rs = -0.09$ and 0.20 , respectively).

Description performance

Two coders examined each participant's description. After agreeing on a 'correct' description for each target face, coders assessed the number of correct, incorrect, and subjective details provided in each description (cf. Finger and Pezdek, 1999; Meissner *et al.*, 2001). *Correct details* were defined as those facial aspects (eye colour, hair texture, etc.) of the description that correctly matched the target face, whereas *incorrect details* involved those features that did not correctly match the target face. *Subjective details* were

Table 2. Description performance across instructional bias manipulation

	Correct details	Incorrect details	Description accuracy
Warning recall	4.68 (1.98)	0.68 (0.90)	0.89 (0.15)
Free recall	5.21 (2.09)	1.26 (1.41)	0.83 (0.17)
Forced recall	7.74 (2.85)	3.60 (2.56)	0.70 (0.17)

those ambiguous qualities of the face, such as personality/occupational impressions (e.g. pleasant looking, a construction worker, etc.), that were not specific features. Inter-rater reliabilities across participants' descriptions ($N_s = 432$) were sufficient: correct details: $r = 0.89$; incorrect details: $r = 0.93$; and subjective details: $r = 0.90$.

A multivariate analysis of variance (MANOVA) was used to examine the influence of manipulating instructional bias on recall for correct and incorrect details of the target face. Results indicated a significant multivariate main effect of instructional bias, $F(4, 858) = 50.86$, $p < 0.001$, $\eta^2 = 0.22$. Follow-up univariate analyses across the instructional bias manipulation indicated significant effects for both correct, $F(2, 432) = 60.39$, $MSE = 5.46$, $p < 0.001$, and incorrect, $F(2, 432) = 98.29$, $MSE = 3.18$, $p < 0.001$, details. As displayed in Table 2, participants in the forced recall condition generated significantly more correct and incorrect details when compared with participants in the free recall and warning recall conditions, $t_s(286) > 8.50$, $p_s < 0.001$. Participants in the warning recall condition also produced significantly fewer correct and incorrect details when compared with participants in the standard recall conditions, $t_s(286) > 2.20$, $p_s < 0.05$, thereby confirming the manipulation of participants' output criterion across all recall instruction conditions.

The accuracy of participants' descriptions (i.e. proportion of correct details recalled) was also assessed for any differential effects across the instructional bias manipulation. Results of an ANOVA indicated a significant main effect of instructional bias on description accuracy, $F(2, 429) = 53.63$, $MSE = 0.03$, $p < 0.001$. Planned comparisons indicated that participants in the forced recall condition generated descriptions that were significantly less accurate when compared with participants in the warning and free recall conditions, $t_s(286) > 6.50$, $p_s < 0.001$, while participants in the warning recall condition generated descriptions that were significantly more accurate when compared with participants in the standard recall condition, $t(286) > 3.35$, $p < 0.01$, (see Table 2).

Description-identification relationship

As in our previous study (Meissner *et al.*, 2001), we were interested in estimating the relationship between participants' descriptions and their subsequent performance on a lineup identification task. Estimates of correct and incorrect details generated by participants, as well as overall description accuracy, were examined for their influence on identification performance ($N = 432$). Whereas correct details failed to correlate with identification, $r = -0.07$, n.s., both the number of incorrect details, $r = -0.25$, $p < 0.001$, and overall description accuracy, $r = 0.27$, $p < 0.001$, significantly predicted identification accuracy.

Conclusions

Taken together, the findings of Experiment 1 largely replicate and extend those obtained in Meissner *et al.* (2001). A significant VO effect was observed when participants were

forced to generate descriptors beyond their normal criterion of responding. This instructional bias effect influenced both the quantity and quality of descriptors generated. Furthermore, the instructional bias effect influenced responding on the identification task regardless of whether the target was present or absent from the photo array, and despite a sequential method of presentation. However, consistent with previous research (Stebly *et al.*, 2001), the sequential 'superiority' effect was replicated when the target was absent from the photo array.

EXPERIMENT 2: REPEATED DESCRIPTIONS

Whereas lineup presentation factors represent one set of applied variables of interest to eyewitness researchers, those investigating the VO effect also appear to have neglected the effects of repeated descriptions prior to identification. In reality, witnesses to a crime are often questioned repeatedly over the course of an investigation regarding their memory for the event and perpetrator(s) of the crime. Although the interval between viewing of the event and a witness's first recall to investigators may be rather brief (i.e. hours following the event), subsequent requests for recall of information may be days, weeks, or even months following this initial episode. Overall, studies investigating the accuracy of recall over repeated attempts have demonstrated both benefits and costs to such a process (cf. Roediger and Guynn, 1996; Roediger *et al.*, 1993). On the positive side, several eyewitness studies have observed increases in the amount of information recalled by witnesses over time (or 'hypernesia'; Scrivner and Safer, 1988; Turtle and Yuille, 1994), while others have noted only a 'protective' effect in which items that are recalled initially are more likely to be recalled on subsequent trials (Ebbesen and Rienick, 1998). Unfortunately, such a protective effect can influence both accurate and erroneous details of the event or perpetrator. Furthermore, initial attempts at recall can deter a witness's ability to retrieve other information (i.e. details not retrieved initially) during subsequent interviews (i.e. 'retrieval-induced forgetting'; Shaw *et al.*, 1995).

Although the majority of studies have focused on witnesses' memory for event details, Ebbesen and Rienick (1998) noted that memory for person descriptors may not be as susceptible to the effects of forgetting and retrieval-based interference. However, given that other studies have demonstrated effects of misinformation on memory for human faces (see Loftus and Ketcham, 1993), further research is needed to address such a proposition. In addition, no studies appear to have investigated the influence of repeatedly describing a face on subsequent accuracy in a lineup identification task. The current study attempted to address this paucity in the literature by exposing participants to a stimulus face and, following a short delay, requesting a description of the face from memory. During this initial recall episode, participants were provided one of three instructions that sought to manipulate output criterion on the description task, and thus induce a VO effect on subsequent identification (cf. Meissner *et al.*, 2001). One week later, participants returned to the lab and were again asked to describe the face viewed previously (via a 'free recall' instruction only), and subsequently to identify the target from a photo lineup. Several control conditions were also included to compare the effects of repeated descriptions and the 1-week delay on recall and identification performance. It was predicted that the instructional bias manipulation would influence recall of correct and incorrect details across the 1-week delay interval, as well as subsequent lineup identification performance. Furthermore, it was expected that incorrect details repeated at both

recall episodes would be predictive of identification accuracy. Aspects of forgetting of person descriptors across the retention interval were also assessed.

Method

Participants

Two hundred and sixteen students (127 females and 89 males) were recruited from an Introductory Psychology course for participation in the study. Data was collected in groups of 6 to 10 participants.

Materials, design, and procedure

Stimulus materials were identical to those employed in Experiment 1; however, only simultaneous, target-present lineup arrays were presented at identification. A 4×2 mixed factorial design was used to assess the influence of the recall-based criterion manipulation (free recall versus warning recall versus forced recall versus no-recall control) on repeated recall (immediate and 1-week delay) and subsequent lineup identification. Two hanging control conditions (i.e. immediate description only and 1-week delayed description only) were also included for comparison of the effects of repeatedly describing the target face across the 1-week interval. Thirty-six participants were included in each of the six experimental conditions.

Participants were instructed that they would be viewing a stimulus for several seconds, and that later they would be asked questions about what they had seen. One of three target faces was projected onto a screen for 5 s. Immediately following the stimulus presentation, participants were given a distractor task (digit search puzzle) for 15 min. Following this brief retention interval, participants were either asked to provide a description of the person they saw (via one of the three response criterion instructions presented in Experiment 1), or were asked to complete a survey regarding their attitudes to euthanasia. All participants were then excused and asked to return to the lab one week later. At the beginning of the second session, participants in the description conditions were again asked to describe the face they had viewed previously. At this delayed recall episode, all participants in the delayed description conditions were administered a standard free recall instruction. To guard against the effects of simply retrieving the previous verbal description, participants were encouraged to think back to the face they had seen one week previously and to generate a description based upon their memory for the target face. Immediately following this description, participants were presented with a photograph lineup identification task (simultaneous, target-present array). Participants were instructed that they would be shown eight faces and that they should select the face that they saw at the beginning of the experiment. In addition, participants were warned that the target may or may not be present in the lineup array, and were given the option of indicating that the target was 'not present' or that they were too 'unsure' of their memory for the target face to make an identification decision.

Results and discussion

Table 3 provides estimates of description and identification performance for each condition in the study. Unless otherwise noted, a standard $p < 0.05$ criterion was used to assess statistical significance.

Table 3. Description and identification performance as a function of instructional bias on the description task and repeated attempts at recall

	Immediate recall			1-week delayed recall			Identification accuracy
	Correct details	Incorrect details	Description accuracy	Correct details	Incorrect details	Description accuracy	
No recall control							50%
Immediate free recall only	4.72 (1.70)	1.25 (1.23)	0.83 (0.14)	3.69 (1.74)	1.25 (1.11)	0.77 (0.18)	44%
Delayed free recall only	3.47 (1.92)	0.47 (0.51)	0.86 (0.19)	3.06 (1.74)	0.53 (0.65)	0.83 (0.23)	25%
Warning recall	4.56 (1.34)	1.14 (0.99)	0.83 (0.12)	4.31 (1.21)	1.17 (1.03)	0.82 (0.15)	69%
Free recall	7.22 (1.74)	2.81 (1.83)	0.73 (0.14)	6.56 (1.96)	2.75 (1.95)	0.71 (0.19)	44%
Forced recall							31%

Identification accuracy

A 4×2 HILOG analysis examined the influence of the instructional bias manipulation (free recall versus warning recall versus forced recall versus no-recall control) on identification accuracy (correct versus incorrect). Confirming previous studies (Finger and Pezdek, 1999; Meissner *et al.*, 2001), a significant effect of instructional bias was observed, $\chi^2(3) = 11.52, p < 0.05$. Planned comparisons demonstrated that participants in the forced recall condition performed significantly worse than participants in the warning recall condition, $\chi^2(1) = 8.03, p < 0.01$. While a comparison of participants in the forced recall and no-recall control condition failed to reach the conventional level of significance, $\chi^2(1) = 2.83, p < 0.10$, the size of this VO effect ($r = -0.20$) was quite comparable to that observed across previous studies (see Meissner and Brigham, 2001). Participants in the warning recall condition were significantly more accurate than those in the standard recall condition, $\chi^2(1) = 4.59, p < 0.05$, but performed only marginally superior to those in the no-recall control condition, $\chi^2(1) = 2.83, p < 0.10$. Interestingly, participants who had generated a description only following the 1-week delay performed significantly worse than participants in the no-recall condition, $\chi^2(1) = 4.80, p < 0.05$. Although Boelter and Reisberg (study cited in presentation at the biennial meeting of the Society for Applied Research in Memory and Cognition, Boulder, CO, July 1999) have previously observed such a VO effect following a 48-hr post-encoding delay, few other studies have manipulated onset of the description task beyond rather short retention intervals (i.e. less than 30 min). Thus, future research would be worthwhile to investigate such effects in the VO paradigm (cf. Meissner and Brigham, 2001).

Description performance

Similar to Experiment 1, two coders examined each participant's description(s). After agreeing on a 'correct' description for each target face, coders assessed the number of correct, incorrect, and subjective details provided in each description. Inter-rater reliabilities were sufficient: correct details: $r = 0.90$; incorrect details: $r = 0.95$; and subjective details: $r = 0.88$.

A 3×2 multivariate analysis of variance (MANOVA) was used to examine the influence of manipulating instructional bias (warning recall versus standard recall versus forced recall) on repeated recall (immediate and 1-week delay) for correct and incorrect details of the target face. Results indicated a significant multivariate main effect of instructional bias, $F(4, 210) = 23.67, p < 0.001, \eta^2 = 0.31$, and a main effect of repeated recall, $F(2, 104) = 8.01, p < 0.01, \eta^2 = 0.13$. However, the instructional bias \times repeated recall interaction failed to reach statistical significance, $F(4, 210) = 0.71, n.s.$ Follow-up univariate analyses on the instructional bias variable demonstrated that the effect was present across both correct, $F(2, 105) = 49.71, MSE = 4.96, p < 0.001$, and incorrect, $F(2, 105) = 34.30, MSE = 2.88, p < 0.001$, details. Participants in the forced recall condition generated significantly more correct and incorrect details when compared with participants in the free recall and warning recall conditions, $t_s(70) > 4.00, p_s < 0.01$. Participants in the warning recall condition generated significantly fewer correct and incorrect details when compared with participants in the standard recall condition, $t_s(70) > 4.20, p_s < 0.01$, thereby confirming the manipulation of participants' output criterion across all recall conditions. When participants' descriptions were examined for only those details that were *repeatedly* recalled over the two recall episodes, a similar effect of instructional bias was observed, $F(4, 210) = 21.30, p < 0.001, \eta^2 = 0.29$, further evidencing the pervasive nature of the manipulation.

Univariate analyses of the repeated recall effect indicated that it was isolated to correct details, $F(1, 105) = 16.06$, $MSE = 0.66$, $p < 0.001$. Overall, participants generated significantly fewer correct details following the 1-week delay ($M_s = 5.08$ and 4.64 , $SD_s = 1.75$ and 1.73 , respectively). Given that previous studies had observed either increased performance across repeated attempts at retrieval (i.e. 'hypermnnesia'; Scrivner and Safer, 1988; Turtle and Yuille, 1994), or 'protective' effects of an initial recall episode (Ebbesen and Rienick, 1998), this loss in correct details was rather unanticipated.

We also assessed the effects of the instructional bias manipulation and repeated recall on description accuracy (i.e. the proportion of correct divided by the sum of correct and incorrect details) via a 3×2 repeated-measures ANOVA. Results indicated only a main effect of the instructional bias manipulation, $F(2, 105) = 6.05$, $MSE = 0.05$, $p < 0.01$, indicating that participants in the free recall and warning recall conditions generated more accurate descriptions when compared with participants in the forced recall condition, $t_s(70) > 2.65$, $p_s < 0.01$. In addition, participants in the warning recall condition generated descriptions that were significantly more accurate when compared with participants in the standard recall condition, $t(70) > 2.84$, $p < 0.01$. Neither the repeated recall effect, $F(1, 105) = 2.63$, n.s., nor the instructional bias \times repeated recall interaction, $F(2, 105) = 0.10$, n.s., were significant.

Taken together, the instructional bias manipulation significantly influenced both the quantity of descriptors generated and the quality of the overall description. This effect did not interact with repeated recall, and was also observed when examining those descriptors that participants repeatedly generated across the delay. Thus, it appears that lowering participants' criterion of responding on an initial recall test can pervasively influence subsequent attempts at recall. Although the accuracy of participants' descriptions did not differ across the 1-week delay, a loss in the number of correct details was observed.

Description-identification relationship

As in Experiment 1, we were also interested in estimating the relationship between participants' initial descriptions and their subsequent performance on a lineup identification task. First, estimates of correct and incorrect details generated by participants ($N = 108$) were examined for their influence on identification performance. Correct details failed to significantly influence identification accuracy when recalled either immediately or following the 1-week delay, $r_s = -0.16$ and -0.17 , respectively. However, a greater number of incorrect details was significantly predictive of later inaccuracy on the identification task when generated both immediately or following the 1-week delay, both $r_s = -0.31$, $p_s < 0.01$. Description accuracy was assessed and found to significantly predict identification performance for descriptions generated immediately, $r = 0.30$, $p < 0.01$, or following the 1-week delay, $r = 0.25$, $p < 0.05$. Finally, when descriptions were examined for details that were reported *repeatedly* across the delay, similar effects were observed for correct details, $r = -0.16$, n.s., incorrect details, $r = -0.37$, $p < 0.001$, and description accuracy, $r = 0.27$, $p < 0.01$.

Conclusions

Overall, results of the current study have again replicated the instructional bias effect on both description quantity/quality, and subsequent lineup identification accuracy. Analyses of description quality indicated that incorrect details recalled by participants were negatively associated with subsequent accuracy on the lineup identification task. Although the forced recall manipulation did not result in a statistically significant VO effect when

compared with the no-recall control condition, the effect size was quite comparable to that observed across previous studies. It is possible that either the 1-week retention interval or the repeated description task could have reduced the size of the observed effect.² Nevertheless, instructional bias did influence lineup identification performance, particularly when the warning recall and forced recall conditions were compared. Given their applied reality in the eyewitness domain, future studies should continue to explore the influence of instructional bias and repeated recall in conjunction with the VO paradigm.

GENERAL DISCUSSION

The aims of the current article were to replicate the instructional bias effect in verbal overshadowing (VO) observed in previous studies (Finger and Pezdek, 1999; Meissner *et al.*, 2001), and to extend this finding to include situations of applied interest. Experiment 1 found a significant VO effect when participants were forced to generate descriptors of a face beyond their normal criterion of responding. This instructional bias VO effect occurred despite a 'sequential' presentation format that is generally believed to provide a measure of safeguard against erroneous identifications (Lindsay and Wells, 1985). Furthermore, this VO effect acted to *reduce* correct identifications when the target was present and *increase* false identifications when the target was absent from the lineup array. Indirectly, the effect appears to stem from the quality of the description generated, particularly the number of incorrect details recalled. Experiment 2 examined the effects of instructional bias at an initial recall episode on subsequent recall and identification of a target face 1 week later. While a main effect of instructional bias was observed on identification accuracy, the VO effect (forced versus control conditions) was reduced in size following repeated descriptions and a 1-week delay. Given the applied relevance of such conditions, future studies should explore this reduction of the VO effect (see also Meissner and Brigham, 2001). Nevertheless, the quality of descriptors generated by participants in Experiment 2 at both recall episodes was predictive of later identification accuracy, principally including incorrect details that were repeatedly generated across the retention interval.

Overall, the current findings provide further support for retrieval-based effects in VO (Meissner *et al.*, 2001; Meissner and Brigham, 2001). In both experiments, the quality of the accessible representation of the target face was influenced by the instructional bias manipulation. More specifically, participants in the forced recall condition generated descriptions that were significantly less accurate when compared with participants in the warning and free recall conditions. This change in quality of the description (particularly via incorrect details) appears to have subsequently influenced identification accuracy

²Given that identical materials and procedures were employed across Experiments 1 and 2, it might be worthwhile to compare the accuracy rates across the instructional bias (VO) conditions when identification is immediately conducted (Experiment 1) versus following a 1-week delay and second recall episode (Experiment 2). Results indicate that the smaller VO effect size following the 1-week delay was due to a larger reduction in the accuracy of no-description control participants following the delay (immediate = 64%; 1-week delay = 50%), when compared with those participants who were forced beyond their normal criterion of responding on the description task (immediate = 39%; 1-week delay = 31%). While this is quite consistent with the moderator analysis conducted by Meissner and Brigham (2001), future studies should explore such an effect given its relevance to the typical eyewitness scenario.

when participants attempted to apply their temporally accessible verbal representation of the target face.

An alternative account, involving Schooler *et al.*'s (1997) 'transfer inappropriate retrieval' (TIR), proposes that VO could be due to a mismatch between two distinct types of memory representations brought about by verbal descriptions (i.e. featural processes) versus identification decisions (i.e. configural processes). In particular, Schooler and colleagues note that generating featural information in a verbal description might subsequently reduce access to (or overshadow) the retrieval of configural information and hinder the application of processes useful for later identifying the face. However, Schooler and colleagues generally have dismissed the role of retrieval-based (or 'recoding') mechanisms in the VO effect, in which an initial retrieval episode influences the quality of the verbal representation and all subsequent attempts at retrieval of the memory. The authors reference several findings in support of TIR, including evidence from cross-racial effects (Fallshore and Schooler, 1995), re-presentation of the target face prior to the identification task (Schooler *et al.*, 1996), and description of an alternative non-target face (Dodson *et al.*, 1997). One finding from our meta-analysis (Meissner and Brigham, 2001) also appears to support the notion of TIR; namely, studies implementing an interpolated facial composite task (e.g. Identi-Kit, Faces, etc.) show increased accuracy in subsequent lineup identification when compared with the performance of a no-recall control condition.

With regard to the results of our instructional bias manipulation, Schooler and colleagues might postulate that the VO effect observed in the forced recall condition was a result of the increased number of featural descriptors generated via the liberal shift in criterion of responding. In contrast, a retrieval-based account would seek to explain the VO effect as resulting from a change in the accuracy of the representation during the initial retrieval episode (preceding subsequent identification). One manner in which to distinguish between a retrieval-based account and that of TIR is to assess the unique contributions of the accuracy of featural descriptors and the total number of featural descriptors, respectively, on subsequent identification accuracy. Table 4 presents the partial correlations obtained from regression equations conducted on data taken from Meissner *et al.* (2001) and the two experiments in the current investigation, each of which involved a manipulation of participants' response criterion on the description task. Correlations between the two predictors (i.e. description accuracy and total number of descriptors) ranged between $r_s = -0.28 \geq -0.48$. Results of the regression analyses indicated that description accuracy uniquely accounted for a significant proportion of variance ($M R^2 = 7.30\%$) when compared with the total number of descriptors generated by participants ($M R^2 = 2.05\%$). Thus, it appears to be the quality of the accessible representation that is retrieved, as opposed to the presence or quantity of verbalization

Table 4. Partial correlations for the regression of description accuracy and total number of descriptors on identification accuracy

		<i>N</i>	Description accuracy	Total # of descriptors
Meissner <i>et al.</i> (2001)	Exp. 1	180	0.31***	-0.18*
	Exp. 1	432	0.27***	-0.09
Meissner (2002)	Exp. 2	108	0.23**	-0.16

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

processes evoked, that best predicts performance on the identification task. However, given that TIR accounts for a variety of findings in the VO paradigm, a more conservative explanation of the effects of verbalization may involve a combination of factors including both processing shifts and retrieval-based effects. Future research should seek to address these issues.

From an applied perspective, the current findings provide further caution to field investigators seeking to obtain a verbal description from the eyewitness. In particular, a delicate balance exists between the amount of descriptive information that is necessary or useful for an investigation, and the witness's ability to recall such information. Prompting or encouraging a witness to reach beyond their criterion of initial recall may promote rather deleterious effects both on subsequent attempts at recall (see Experiment 2) and eventual requests for perceptual identification. Furthermore, it appears that the sequential lineup method, which is generally advocated as a procedural safeguard against erroneous identifications (Stebly *et al.*, 2001), may be unlikely to protect against the influence of prior self-generated misinformation. Taken together, we would advocate procedures that allow the witness to recall pertinent information in the *absence* of social pressures that might promote 'completeness' of the description or include suggestive prompts regarding unrecalled information. Such techniques should provide for a greater proportion of accurate descriptors and reduce the likelihood of contaminating subsequent attempts at verbal recall and perceptual identification from a photo array.

AUTHOR'S NOTE

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