

Remembering pictures vs remembering descriptions¹

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Subjects heard descriptions of pictures and were given a recognition test in which the pictures themselves were presented, each picture identical or different with respect to its description. Other Ss had the reverse order, seeing pictures and being tested with changed or unchanged descriptions. With adequate presentation time, recognition accuracy was equally good in either order. In a second experiment, free recall was better for pictures than for descriptions, but both were forgotten at equal rates. These results suggest that more information is taken in from pictures than from descriptions, but that both are equally well retained.

EXPERIMENT 1

In previous experiments, blurred or inverted pictures were shown, and Ss were subsequently given a recognition test with upright focused pictures; for other Ss the reverse order was followed, with a normal presentation picture and a transformed or degraded test picture (Dallett, Wilcox, & D'Andrea, 1968). This experiment constitutes an extension of those, with the pictures transformed into verbal descriptions rather than being blurred or inverted. In such an experiment, a recognition decision is probably based upon some feature which is shared by a picture and its blurred, inverted or "worded" transformation. Hence, in each experimental condition, whether S is asked to remember a normal or a transformed picture he is probably retaining the same information. Previously we found no difference between retention of information presented in normal pictorial context, and the retention of "the same" information presented in blurred or inverted context. The present experiment yields an analogous conclusion for pictures and their verbal descriptions.

The basic experimental design called for a comparison between two conditions; P-D in which pictures were presented followed by a test using their descriptions, and D-P in which descriptions were presented with pictures used in testing. In addition, we varied the duration of the pictures in each condition, making a 2 by 3 factorial design in which D-P vs P-D was combined with 5, 10, and 20-sec picture durations. The descriptions averaged 15 sec in length, and mentioned each detail only once, but pictures could be presented for any duration, and Ss could scan each detail a number of times. By using several durations we hoped to show that unavoidable inequalities of timing were not a powerful determinant of recognition performance.

Method. The descriptions were approximately 40-100 words in length, and each contained six or seven statements about the pictures described. The pictures were 40 pairs of similar pictures used previously (Dallett, Wilcox, & D'Andrea, 1968). Each member of a pair fit the same general description with one member differing from the other in certain details, of which at least two were always described. We had to select those pictures which lent themselves to verbal descriptions, and this often meant that only one member of a pair could be described economically. For example, we avoided pictures for which we would have had to describe the absence of a critical feature, as this would have been a signal to the Ss to focus on that feature. A sample description follows, with the critical differences mentioned in parentheses.

"This is a color photo of a blond little girl posing outdoors holding a gray striped kitten. Her head is turned to the left of the picture and she is smiling (in the other picture she is facing the camera, and the smile is not so pronounced). The way she is holding the kitten against her, his paws are splayed out against her body, and he is looking up at her (in the other picture he is held facing to one side, and hangs limply). She is wearing a yellow dress with white collar and white puffed short sleeves."

The Ss were introductory psychology students, run in small groups. There were 28 Ss in each of the four 5-sec and 20-sec conditions, and 50 Ss in each of the 10-sec conditions (which were run first). Subgroups got two different list orders, and each item was used equally often as "changed" or "unchanged" in the test.

Instructions explained the task, including the fact that the modality would be changed in the test. A picture of some rocks was shown and described by E to indicate the nature of the descriptions. Then the presentation series was shown or described; all descriptions were presented over a loudspeaker via tape recording. There followed a 5-min interval while the test (tape or slides) was prepared, response booklets handed out, and test instructions read. The test was the same as in our earlier paper; for each item S marked whether it was changed or unchanged, and indicated his confidence.

Results. The means appear in Fig. 1. The 10- and 20-sec conditions differ in opposed directions, and neither difference is significant. In the 5-sec conditions, it appears that Ss have not had enough time to store the pictorial information adequately. However, 5 sec is apparently adequate time in testing, suggesting that the pictures are differently processed in presentation and test phases of the experiment. Since the 10- and 20-sec results are comparable, we might conclude that P-D and D-P yield comparable levels of performance, when adequate time is allowed to process the pictures for remembrance. Since the performance level was quite low, we examined the 10 easiest items separately, and still found P-D equal to D-P in the 10- and 20-sec groups.

EXPERIMENT 2

Recall can be based upon remembered information which is not used in recognition testing, so this experiment explored the time course of forgetting for P and D. Mixed series of P and D were presented, and then either immediately, two days, or one week later, Ss were asked to write down a brief phrase or label identifying each item they could remember. Then they were given a list of the 20 items, mixed with the designations of 20 other items, and were asked to say whether each item had been seen (P), described (D), or never-before-encountered in the experiment (N).

Method. The pictures and descriptions were those used in Experiment 1, but only one member of each pair was needed. Except for a few pictures with very long descriptions, 30 sec was allowed for each item. If a picture was presented, it remained on for the entire period. If a description was read, there was silence for the remainder of the 30 sec. We thought this might give a better opportunity for review and rehearsal of the descriptions. In the recall test, Ss were asked to be brief, and were allowed 8 min. The few Ss who had not finished were allowed more time. Following free recall, recognition test booklets were passed out and completed. A total of 29 Ss received an immediate test, 28 were tested after two days, and 30 after one week.

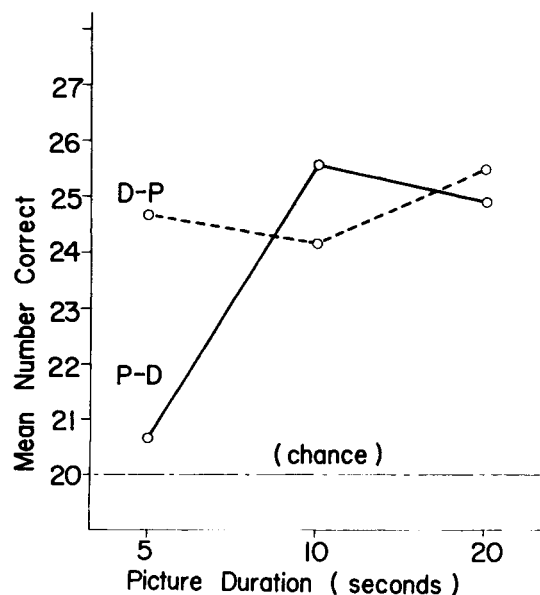


Fig. 1. Mean number of correct recognition decisions.

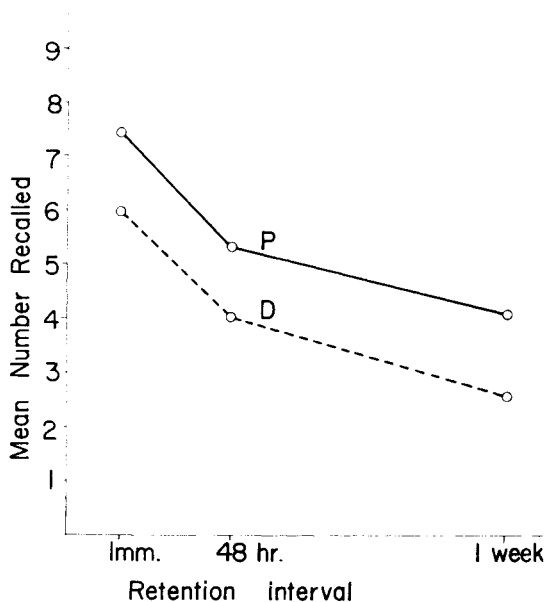


Fig. 2. Mean number of items recalled.

Results. Errors in recall were infrequent (five in the immediate test, 10 at two days, 23 after one week), and scoring was not a problem despite the fact that Ss were allowed considerable latitude as to how they designated a picture or description. Any scoring bias might have favored descriptions, since Ss sometimes used phrases provided in the description itself. The recall scores, however, clearly favor pictures, as Fig. 2 reveals. The two main effects were significant; the interaction was not.

The recognition test which followed showed some tendency for Ss to erroneously identify descriptions as pictures more often than they wrongly identified pictures as descriptions. One reason for including this test was because Ss in Experiment 1 reported that they picked out and verbally rehearsed items which they thought would be critical ones, but they also reported that they "visualized" the content of descriptions. The occurrence of such verbal and visual rehearsal might explain some of the errors of misidentification.

The trend toward calling too many items "pictures" is not a strong one. Looking only at items which had previously been mentioned in free recall, there were 24 instances in which a D was misidentified as P, but only three attributions of D when P was correct. Looking at all items presented, more D items were wrongly identified than P items (211:136), and the general tendency was to forget a picture altogether and report that it had never been encountered. Descriptions were misremembered as P in only 37.9% of total D errors, while P was misremembered as D 22.8% of the time. The small difference in favor of "P" reports does not result from a general tendency to call items "P," for when items never presented were wrongly recognized, they were more often called D in a ratio of 113:91. Of course this might be compensation of a bias toward P for those items which were poorly remembered but rightly recognized as having been presented. To settle this we would need a model which specifies how each recognition decision is made.

DISCUSSION

It is not clear why there is better free recall for pictures. This might reflect the fact that there is more information available in pictures, or it might reflect differences in the organization of pictorial and verbal information. Perhaps the pictorial information is more readily retrieved, as would be the case if there were more of it to be encountered in a probabilistic search process. In any event, we might conclude that more was learned from the pictures than from their descriptions. However, the retention curves were parallel for P and D, and when a recognition test was used in Experiment 1 to ensure that P and D were being compared on the same items of information we were led to conclude that each was remembered equally well. Therefore, it could be said that despite the greater ease of learning pictorial material, pictorial material is no better and no worse remembered than verbal material. Unfortunately, such a conclusion rests upon a number of assumptions concerning the nature of the information remembered, the nature of S's performance in the recognition test, and the reasonableness of using number correct in free recall as a measure of retention. Since our conclusion depends upon so many assumptions, these experiments might best be considered an attempt to clarify all of them simultaneously.

REFERENCE

DALLETT, K., WILCOX, S. G., & D'ANDREA, L. D. Picture memory experiments. *J. exp. Psychol.*, 1968, 76, 312-320.

NOTE

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