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When Naming Means Forgetting: Verbal Classification Leads to Worse Memory

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It seems that once an object's name is learned, it makes little difference whether the object is called by that name (e.g., Bloom, 2001). If one sees a picture of a chair, one would not expect that responding with "chair" would somehow alter the mental representation of that item. However, simulation work (Lupyan, in press) has suggested that classifying an item may result in more categorical representations at the cost of representing idiosyncratic properties of the classified stimulus. If this is indeed the case, participants should have worse memory for items that are labeled compared to items for which the labeling process is somehow suppressed. The present work provides evidence from four experiments that producing basic-level names of highly-familiar objects (chairs, tables, lamps) dramatically alters encoding of the items. After making a classification response, normal adults have much worse recognition memory for the items they have classified.

Procedure

A total of 70 Carnegie Mellon University undergraduates took part in the four experiments. The task was similar in design to Sloutsky and Fisher (2004), consisting of a study phase in which participants saw a number of exemplars from several categories, and a test phase in which participants had to discriminate the old items from new, but similar items from the same categories. The stimuli were pictures of chairs and tables (Exps. 1 and 3), and chairs and lamps (Exps. 2 and 4). The study phase contained 20 items from each category, presented in blocks of 10 in a random, interleaved order. Each picture was presented for 300ms. After the picture disappeared, participants had 700ms (except in Exp. 3) to either classify the image (label it as a chair/table or chair/lamp), or indicate their preference for it (like/don't like). The preference condition was included as a control to the classification condition such that (1) a response was required after each image and (2) the required response to the non-classified stimuli would act to de-emphasize category knowledge. The design was entirely within-subject: each participant classified half the images and indicated preference for the other half. After the study phase, participants had to respond old/new to the 40 old items and 40 matched lures.

Results

As predicted, participants had significantly worse recognition memory for the items they have classified than the items for which they indicated preference (Table 1). Experiment 2 replicated the results of Exp 1 using more distinct categories (chairs and lamps) with a very similar pattern of results. Experiment 3 was conducted to investigate whether the results were an artifact of forcing participants to respond in a 700ms time window. Giving participants more time to consider the response did not alter the results. In experiments 1-3, participants knew ahead of time whether they should be classifying or indicating preference to a given stimulus and this may have resulted in strategic processing differences rather than an effect of classification on encoding. Experiment 4 tested this possibility by randomly presenting the classification / preference cue after each item. The pattern of results was the same as in experiments 1-3.

Table 1: Recognition Memory (Experiment 1)

Condition (Within subject)	Hits***	False Alarms	d'*
Preference	.820	.357	1.41
Classification	.625	.303	0.94

***: *p*<.001;   *: *p*<.025

Conclusion

As predicted, classifying highly familiar items led to worse recognition memory. Interestingly, the difference in recognition arose from a different in hits. Detailed item analysis will be presented to support the hypothesis that these results can be explained as a shift *away* from prototype.

Acknowledgments

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