
THE SUPERIORITY OF IMAGERY OVER MEMORY

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Images can be more powerful than memories. In a recent study (Tracy, Pabis, & Kilburg, 1998), college students answered imagery questions about various objects, such as, "How easily does FLOWER arouse an image?". Students gave ratings based on a 7-point scale, ranging from Extremely Easy (7) to Extremely Difficult (1). Using the same scale, other students answered memory questions, like, "How easily does FLOWER arouse a memory?" After rating 30 objects, students then recalled them. Results showed that the imagery questions produced higher ratings and better subsequent recall. It is puzzling why imagery questions produced better recall better than memory questions, since memory questions seem more relevant to the later recall task, according to the encoding specificity and transfer appropriate processing principles (Tulving, 1983; Morris, Bransford, & Franks, 1977).

The two studies reported here were designed to replicate the above findings showing the superiority of imagery over memory questions, and to examine two interpretations. The first interpretation is that answering imagery questions may be valuable because they enhance processing, perhaps as suggested by the coding redundancy hypothesis. Alternatively, memory questions may limit processing by causing people to do more

maintenance than elaborative rehearsal, thereby resulting in inferior LTM encoding,

General Procedure

In two experiments, 142 college students rated how easily words aroused either images or memories. Subsequently they recalled the words. Another variable investigated was whether the words were appropriate or inappropriate at a park.

Experiment 1 Procedure and Results

In the first experiment, students rated image or memory arousal immediately after words were presented (i.e., within 11 seconds). This study attempted to replicate the prior finding of the superiority of imagery over memory questions by having students answer additional types of questions not investigated in the previous study, e.g., "How easily can you image [remember] a FLOWER?" Note that such questions involve self-reference (contain the word, "you").

Results are illustrated in Figure 1. Results showed that the combined mean of the imagery conditions was significantly greater than the combined mean of the memory conditions ($p < .025$), thus replicating and extending earlier research. Note that self-reference questions (containing "you") were

not significantly different from questions with no self-reference. Figure 1 also shows that park-appropriate words produced higher ratings and recall than did park-inappropriate words, but did not interact with the type of questions.

The results of Experiment 1 can be interpreted as consistent with Paivio's coding redundancy interpretation, which maintains that imagery ratings offer inherent advantages over memory ratings by providing added code(s) that produce higher ratings and subsequent recall. Results could also be explained as due to memory questions limiting performance. Specifically, memory ratings may prompt excessive maintenance rehearsal (STM) rather than elaborative rehearsal, resulting in lowered ratings and delayed recall. Images appear not be as susceptible to maintenance rehearsal, perhaps because it is unlikely that people will try to verbally rehearsing them.

Experiment 2 Procedure and Results

In the second experiment, students gave their ratings following a 30-second period during which they described their images or memories. The rationale was that if people in both conditions did elaborative rehearsal, then the memory condition should no longer be at a disadvantage compared to the imagery condition. A manipulation check was included which showed that students did as they had been instructed in describing their images or memories.

Consistent with expectation, results showed that the imagery condition and the memory condition did not produce significantly different ratings or subsequent recall (see Figure 2). Figure 2 compares results from Experiment 2 with those from Experiment 1 and also data from Paivio et al and Christian et al. word norms.

Conclusions and Implications

Collectively, results from both experiments refuted the coding redundancy interpretation (Paivio, 1991). This interpretation suggests that imagery processing would produce superior performance in both experiments because of an additional (imagery) code. This clearly did not happen in Experiment 2.

Instead the results of both experiments were more easily interpreted based on a distinction between maintenance and elaborative rehearsal. Evaluating words for memory arousal can cause people to do maintenance rehearsal, which is not effective for subsequent recall (cf. Nelson & Dunlosky, 1991). The results of Experiment 1 are consistent with these ideas. Further, when memory and imagery ratings are made following elaborative rehearsal as in Experiment 2, there was no difference between the conditions. Thus, the results of both experiments were generally consistent with the maintenance-elaborative rehearsal distinction.

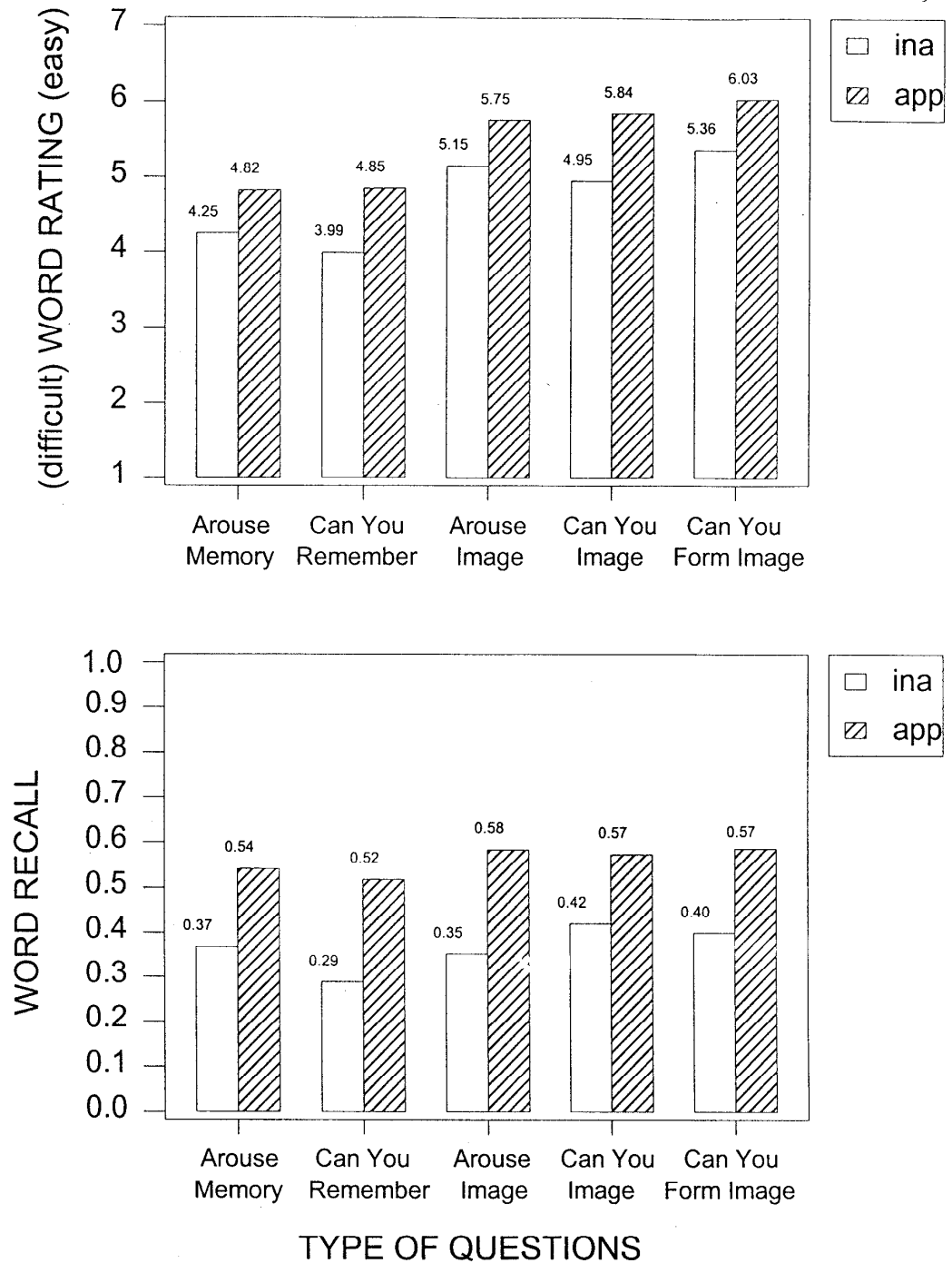


Figure 1. Word Rating (top graph) and Word Recall (bottom graph) as a function of whether words were inappropriate (ina) versus appropriate (app) in a park, and Type of Questions. Each label refers to a different type of question: Each label refers to a different type of question:

Arouse Memory, "How easily does FLOWER arouse a memory?"

Can You Remember, "How easily can you remember a FLOWER?"

Arouse Image, "How easily does FLOWER arouse an image?"

Can You Image, "How easily can you image a FLOWER?"

Can You Form Image, "How easily can you form an image of a FLOWER?"

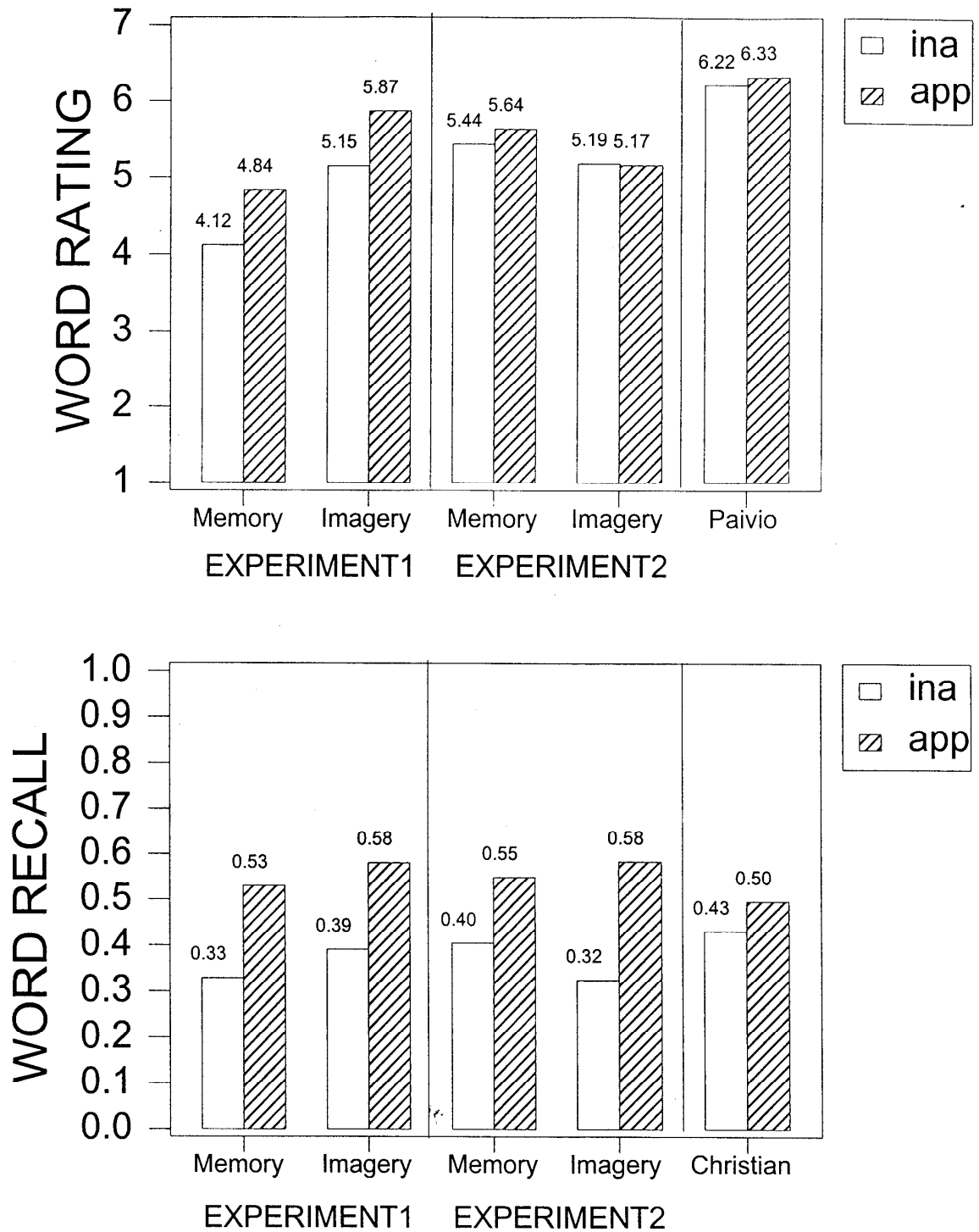


Figure 2. Memory rating and imagery rating conditions are compared in two experiments and with word norms of Paivio et al. and Christian et al. Comparison is also made between park-appropriate (app) words and park-inappropriate (ina) words.

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Following is the scan page that was submitted:

The Superiority of Imagery over Memory

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People who rate how easily words arouse images (rather than memories) give higher ratings and show better subsequent word recall. This research replicated these results and examined two interpretations.

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