

MOOD-DEPENDENT RETRIEVAL: COMMENTARY ON WETZLER¹

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Summary.—We comment on a failure to replicate mood-dependent retrieval of memories that was reported in this journal by Wetzler in 1985. Wetzler's procedures for obtaining the effect were reasonable so we attempt to explain Wetzler's result and integrate it with other recent work on mood-dependent retrieval.

In an earlier issue of this journal, Wetzler (13) reported an unsuccessful attempt to replicate mood-dependent retrieval. Retrieval is said to be mood-dependent if a person's mood during learning serves as a potent retrieval cue when that mood recurs at time of recall. Recall will be enhanced to the degree that mood at recall is similar to mood at original learning. The effect was first reported in 1978 (4, Exp. 3), the experiment Wetzler attempted to replicate. Bower, *et al.* first attempted to obtain the effect with experiments in which subjects learned a single word-list in a given mood (happy or sad) and later recalled the list in either the same or the opposite mood. After failing to find the effect with the single-list design, Bower, *et al.* found it using a multiple-list learning design. Here, subjects learned two lists in different moods and then recalled in the mood which matched one list and contrasted with another. The positive finding was then replicated and elaborated by B. Thompson (3).

Later, however, because there were a few conflicting reports concerning this effect, Bower and Mayer (4) performed an unsuccessful replication. This outcome was puzzling, because several positive findings of the effect have been reported (8). Wetzler's study is yet another failure to obtain the result. There are some aspects in both our own and Wetzler's failure to replicate, however, which could have attenuated the effect. These aspects, which did not initially appear important to the effect, have become salient to us as our own research in the area has continued. These aspects and other issues are discussed below in the context of Wetzler's study, and a second result from a mail communication.

Wetzler's study is not an exact replication of Exp. 3 of Bower, *et al.*, and to the extent that the initial report was of a genuine but small effect, procedural differences may illuminate the differing results. First, the learning materials were different in the two studies. In Bower, *et al.*'s studies, the to-be-remembered stimuli were lists of words presented by the experimenter. In Wetzler's study, subjects were asked to generate word associations to a set of words presented by the experimenter. These word associates then became the to-be-remembered material analyzed at immediate and delayed recall. This should not have interfered with the effect since state-dependent memory can be enhanced for stimuli which are subject-generated (12).

The second difference between the two studies was in the interval between learning the two lists, which was far longer in the Wetzler experiment (1 day) than in the Bower, *et al.* study and in Thompson's replication (both used a few minutes' spacing). The longer interlist interval probably reduced interference between competing materials, which could attenuate the effect.

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Third, the Wetzler study employed the Velten mood-induction technique (10, 11), an autosuggestion technique in which subjects read a series of mood-related statements (e.g., "I feel worse today than yesterday") and try to imagine themselves feeling a particular mood. There is good reason to suspect that the Velten technique is less successful in creating strong moods than are the hypnotic-induction procedures used by Bower, *et al.* Although mood change was measured by self-rating immediately after the mood induction, mood change resulting from the Velten procedure is known to abate quickly when it is not frequently refreshed (6). Furthermore, Wetzler induced moods by administering the Velten to subjects in groups; it is likely that the presence of strangers inhibits full expression of emotions. To the extent that mood is not effectively manipulated in Wetzler's study, the effect would be compromised.

Although we can note (with hindsight!) that Wetzler's procedures were not optimal for obtaining mood-dependent retrieval, they appear reasonable. Moreover, his design allowed a number of different opportunities for the effect to appear, yet none of the relevant comparisons yielded significant results. One representative comparison among studies is percent retention of the target list in matching versus mismatching recall moods. This contrast was 78% versus 47% in the original Bower, *et al.* study but dropped to 58% versus 56% in (4), and to 51% versus 51% in Wetzler's study. We are ready to conclude that this general design, at least as presently specified, does not yield reliable effects. We now believe the original result was a chance, spurious outcome.

At present, we can offer two hypotheses to account for the conflicting reports of mood-dependent retrieval in the literature. A first hypothesis is that the required mood-to-item associations for the effect will be formed only if the subject perceives the mood as "causally belonging" with the to-be-remembered item. This idea is suggested by Thorndike's (9) earlier research as well as Baddeley's (1) theory of interactive context effects. That is, only when the subjects believe that an event (or item) is causing the emotional reaction will they form an associative linkage between the emotion and the item (mood-dependent retrieval requires such linkages). Wetzler's design did not have this causal-belongingness component to the item-mood presentations, and several of our failures did not (4). While this does not explain the first successful finding, it may explain some of our more recent work. In one recent experiment, we had subjects causally attribute their emotional reactions to the learning items. This study yielded a significant effect for those subjects who were greatly affected by the mood induction.

An alternative explanation is that mood-dependent retrieval is an "experimenter bias" effect (7), arising from the experimenter's expectations and rapport with highly suggestible subjects. This hypothesis was suggested by Professor Robert Beck of Wake Forest University (personal communication, May 1st, 1985) who supervised two students attempting to replicate Exp. 3 of the Bower, *et al.* study. Surprisingly, one student obtained the effect while the other did not. If this experimenter-bias explanation proves to be correct, then the effect loses its theoretical appeal. But experimenter-demand seems insufficiently well specified to account for the divergent findings in past studies. Our best estimate of the effect is that the causal-belongingness hypothesis is worth exploring as a possible explanation for varying effects.

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