Late consequences of early selection: When memory monitoring backfires

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A R T I C L E   I N F O

Article history:
Received 18 September 2015
revision received 31 May 2016

Keywords:
Retrieval orientation
Monitoring
Memory for foils

A B S T R A C T

At retrieval, people can adopt a retrieval orientation by which they recreate the mental operations used at encoding. Monitoring by retrieval orientation leads to assessing all test items for qualities related to the encoding task, which enriches foils with some of the qualities already possessed by targets. We investigated the consequences of adopting a retrieval orientation under conditions of repeated monitoring of the same foils. Participants first processed foils in the context of one of two tests encouraging different retrieval orientations. The foils were then re-used on a subsequent test in which retrieval orientation either matched or mismatched that adopted on the first test. In the aggregate data, false alarms for repeated foils were higher when there was a match between the retrieval orientations on both tests. This demonstrates that when retrieval orientation enriches foils with target-like characteristics, it can backfire when repeated monitoring of the same foils is required.

Introduction

When asked to retrieve some information from memory, people can employ a variety of monitoring strategies to improve the quality of their memory report. One strategy is to mentally recreate the operations performed at the time of encoding. This mentally recreated information becomes embedded in the retrieval cue and every item in a memory test is then assessed with respect to the degree of match with this cue. Since only studied items are associated with diagnostic details now embedded in the retrieval cue, this form of monitoring allows for effective rejection of non-studied items (foils). This monitoring strategy can be viewed as a consequence of having adopted a retrieval orientation (e.g., Gray & Gallo, 2015; Herron & Rugg, 2003a; Pierce & Gallo, 2011; Rugg & Wilding, 2000) or as an example of early selection (e.g., Guzel & Higham, 2013; Jacoby, Kelley, & McElree, 1999).2

Research conducted to date has shown the benefits of applying early selection mechanisms for memory reports (e.g., Bridger, Herron, Elward, & Wilding, 2009; Pierce & Gallo, 2011). The present study breaks with this tradition by delineating the conditions in which the use of such a monitoring strategy comes at a cost when repeated monitoring of the same foils is required.

Evidence for monitoring by retrieval orientation comes from two strands of research which, although distinct, share a common approach: they infer the operation of a monitoring strategy from the ways in which foils are...
processed at test. Both strands capitalize on the premise that as non-studied foils are by definition unaffected by the study phase, any difference between the processing of the foils must be caused by the monitoring strategy adopted at test. The first strand of research uses measures of neural activity such as event-related potentials (ERPs). It is possible to compare ERPs elicited by foils in two tasks differing with respect to the kind of information that needs to be retrieved in order to answer a memory question. The differences between ERPs are assumed to demonstrate the operation of distinct retrieval orientations depending on the type of queried information. Past research has shown differences between ERPs elicited by new items when study items were presented as pictures versus words (e.g., Herron & Rugg, 2003a; Robb & Rugg, 2002), were studied with a pleasantness versus an animacy judgment (Herron & Wilding, 2004, 2006), or with a shallow versus deep processing task (Rugg, Allan, & Birch, 2000), among others. These studies clearly demonstrate that non-studied foils are processed differently under various retrieval orientations.

The second strand of research uses behavioral methods to gain insights into when and how monitoring by retrieval orientation is employed. In the memory-for-foils paradigm (Jacoby, Shimizu, Daniels, & Rhodes, 2005; Jacoby, Shimizu, Velanova, & Rhodes, 2005; Shimizu & Jacoby, 2005), participants first learn a list of words with two different orienting tasks: one deep (for example, a pleasantness judgment task) and one shallow (e.g., counting the number of letters or vowels in each studied word). Following the study phase, they are given two old/new recognition tests. On the deep test, only deeply processed words are presented among foils. On the shallow test, only words studied with the shallow task are among foils. Finally, an additional memory test for unstudied foils is administered. The final test list consists of three types of items: deep foils (foils presented on the deep test), shallow foils (foils presented on the shallow test), and new words (not presented on any of the tests). Participants are instructed to distinguish new words from those that were presented earlier during any phase of the experiment. The main finding in this paradigm is a task-dependent difference in correct endorsements for previously encountered foils: deep foils are more often indicated as having been seen during the course of the experiment than shallow foils. This is taken as evidence that the retrieval orientation adopted on the deep test enriches these foils with diagnostic information embedded in the retrieval cue.

The findings in subsequent studies support the explanation that the better memory for deep foils observed by Jacoby, Shimizu, Daniels, and Rhodes (2005) argued that the assessment of foils with the use of retrieval orientation on the deep test enriches these foils with diagnostic information embedded in the retrieval cue.

The second study-test block had the same structure. The study phase was as for the first block, and all of the words presented were new to the experiment. The two
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