



ELSEVIER

Contents lists available at ScienceDirect

Journal of Memory and Language

journal homepage: www.elsevier.com/locate/jml

Retrieval-induced versus context-induced forgetting: Can restudy preceded by context change simulate retrieval-induced forgetting?



Julia Rupprecht, Karl-Heinz T. Bäuml*

Department of Experimental Psychology, Regensburg University, Germany

ARTICLE INFO

Article history:

Received 21 June 2016

revision received 26 October 2016

Keywords:

Episodic memory

Retrieval-induced forgetting

Context change

Inhibition

ABSTRACT

Retrieval-induced forgetting (RIF) refers to the finding that retrieval practice on a subset of studied items can induce later forgetting of related unpracticed items. The context account of RIF, which attributes RIF to a mismatch of study context and reinstated context at test for the unpracticed items, claims that RIF effects can be simulated by restudy trials when these trials are preceded by context change. To test this proposal, we compared across three experiments effects of retrieval practice and of restudy trials preceded by context change, employing both recall and item recognition testing. We found retrieval practice to impair both recall and recognition of unpracticed items, which is consistent with prior work. In contrast, restudy preceded by context change impaired recall but not recognition of the items. These findings suggest that restudy preceded by context change cannot simulate RIF, which challenges the context account of RIF. The results are consistent with the view of a critical role of retrieval and inhibition in RIF.

© 2016 Elsevier Inc. All rights reserved.

Introduction

Retrieval-induced forgetting (RIF) refers to the finding that active retrieval of a subset of previously studied information impairs memory for related nonretrieved information (Anderson, Bjork, & Bjork, 1994). To investigate RIF, a paradigm with three main phases is typically employed: a study phase, in which participants study category-exemplar pairs (e.g., BIRD - *chicken*, SPICE - *ginger*, SPICE - *salt*, etc.); a practice phase, in which half of the exemplars from half of the categories are repeatedly retrieved (e.g., SPICE - *gi_*); and a final test phase, in which all previously studied items are tested using a cued recall test (e.g., BIRD - *C_*, SPICE - *S_*, SPICE - *g_*). The typical finding is that recall of the practiced items (*ginger*) is enhanced and recall of

the unpracticed items from the practiced categories (*salt*) is reduced when compared to recall of the control items from the utterly unpracticed categories (*chicken*). The forgetting of the unpracticed items has been proven to be a very robust finding and to prevail over a wide range of materials, settings, and memory tests (for reviews, see Anderson, 2003; Bäuml, Pastötter, & Hanslmayr, 2010; Storm & Levy, 2012).

The two most prominent accounts of RIF attribute the forgetting of the unpracticed items to either inhibition or blocking. Proponents of the inhibition account assume that, during practice, the not-to-be-practiced category exemplars interfere and are actively inhibited to reduce the interference. The inhibitory effect is supposed to be long-lasting and, thus, to manifest itself in the impaired recall of the unpracticed items on the final memory test (e.g., Anderson et al., 1994; Anderson & Spellman, 1995). In contrast, proponents of the blocking account assume that the cue-item associations of the practiced items are

* Corresponding author at: Department of Experimental Psychology, Regensburg University, 93040 Regensburg, Germany.

E-mail address: karl-heinz.baeu@ur.de (K.-H.T. Bäuml).

strengthened during practice and such strengthening introduces interference of these items during recall of the unpracticed items, thus leading to blocking and impaired recall of the unpracticed items (Raaijmakers & Jakab, 2012; Verde, 2013). Both inhibition and blocking have been argued to account for a wide range of RIF findings (e.g., Anderson, 2003; Raaijmakers & Jakab, 2013), although each of the two accounts is challenged by at least some RIF findings (see section ‘General discussion’).

More recently, a new account of RIF has been suggested, attributing the forgetting of the unpracticed items to contextual change (Jonker, Seli, & MacLeod, 2013). According to this view, during the practice phase, the act of retrieval induces a change in context and thus generates two distinct contexts for the study and practice phases. In the final test phase, the category labels of the control items from the unpracticed categories (e.g., BIRD) are assumed to trigger reactivation of the study context, which is the only associated context for these items; in contrast, the category labels of the items from the practiced categories (e.g., SPICE) may reactivate the practice context, because it is the more recent context for these categories and the practiced items have been elaborated herein. Thus, for the practiced items (*ginger*) and the control items (*chicken*) an appropriate context may be reinstated, whereas for the unpracticed items from the practiced categories (*salt*), which, like the control items, were present in the study phase only, an inappropriate context may be accessed. The resulting contextual mismatch for the unpracticed items is supposed to underlie the forgetting of the items and to be at the heart of the RIF effect.

Evidence in favor of the context account of RIF

Several findings from the literature indeed corroborate the general idea that retrieval can promote context change. For instance, Szpunar, McDermott, and Roediger (2008) found evidence in multiple-list learning that interpolation of retrieval practice between the study of single lists can lead to higher recall rates and fewer prior-list intrusions for a finally studied target list. This result has been interpreted in terms of reduced proactive interference, arguing that retrieval may enhance list isolation, possibly by inducing context change (e.g., Bäuml & Kliegl, 2013; Pastötter, Schicker, Niedernhuber, & Bäuml, 2011). Similar results arose when between the study of the single lists semantic generation tasks were interpolated, in which subjects were asked to generate as many exemplars of a given nonstudied category as possible. Again, recall performance of the final target list was improved, but in addition, recall of the initially studied first list was impaired (Divis & Benjamin, 2014; Pastötter et al., 2011). This pattern of results resembles the one found in previous work on context-dependent forgetting, in which subjects were instructed to change their internal context between the study of lists (e.g., Pastötter & Bäuml, 2007; Sahakyan & Kelley, 2002), indicating that (semantic) retrieval may indeed drive contextual change (for related results, see Jang & Huber, 2008; Sahakyan & Hendricks, 2012; Shiffrin, 1970).

More specific evidence in favor of the context account of RIF comes from studies showing that RIF does not only arise from competitive but also from noncompetitive retrieval practice. Competitive retrieval practice refers to the standard retrieval practice condition, in which a studied item itself is selectively retrieved (*ginger*) facing interference from other studied category exemplars (*salt*). Extending previous work by Anderson, Bjork, and Bjork (2000), Raaijmakers and Jakab (2012) examined the effects of non-competitive retrieval practice and showed that retrieving the category label of a to-be-practiced item without retrieval of the to-be-practiced item itself (e.g., _ - *ginger*) can already be sufficient to induce RIF (see also Grundgeiger, 2014). Similarly, Jonker and MacLeod (2012) asked subjects to study category-item pairs (e.g., PET - *dog*) but replaced standard (competitive) retrieval practice with subordinate generation (e.g., *dog* - _), in which the exemplar was presented intact and subjects were instructed to generate a type of *dog*, such as *beagle*. Again, RIF-like forgetting arose. These findings cannot easily be attributed to inhibition, because noncompetitive practice should not induce interference from other category exemplars and thus should not induce inhibition. The findings, however, are consistent with the context account of RIF, because both competitive and noncompetitive retrieval may produce context change and thus induce RIF.

Particularly relevant for the context account of RIF are recent experiments, in which Jonker et al., 2013 tested a core assumption of the context account directly. The rationale of the experiments was that if RIF represents context-dependent forgetting, then one should be able to simulate RIF using restudy for practice and a preceding context change manipulation. Jonker et al. (2013) let participants study category-exemplar pairs, restudy a subset of the category-exemplar pairs from a subset of the categories, and finally tested the whole study list employing a cued recall test. Whereas in one experiment, no context change was induced before practice, in two other experiments, an imagination task was interspersed immediately before the practice phase to change subjects’ internal context. In one of the two imagination experiments, subjects were also asked to mentally reinstate the study context immediately before the final test started. The context account predicts that restudy induces (i) no RIF-like forgetting when no preceding context change occurs, (ii) RIF-like forgetting when a context change has been induced, and (iii) no RIF-like forgetting when the study context is reinstated before test. The results confirmed all three predictions, indicating that retrieval may not be necessary for RIF and rather context change followed by selective restudy may be sufficient to induce forgetting of the unpracticed items (for further results, see Jonker et al., 2013, and section ‘General discussion’).

From recall to recognition testing

A core assumption of the inhibition account is that RIF is retrieval specific, i.e., it arises following retrieval but not following restudy trials (e.g., Anderson, 2003). And, indeed, comparing the effects of retrieval practice with

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات