

Boundaries of the relation between conscious recollection and source memory for perceptual details [☆]

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Received 21 December 2005

Available online 24 May 2006

Abstract

The relation between conscious recollection and source memory for perceptual details was investigated in three experiments that combined the remember–know paradigm with a multidimensional source monitoring test. Experiment 1 replicated that source memory for perceptual details is better in the case of “remember” than “know” judgments. Experiment 2 showed that the relation between “remember” judgments and source memory for perceptual details is diminished by a semantic orienting task during encoding. Experiment 3 demonstrated that “remember” judgments are related to enhanced source memory for specific and unique kinds of perceptual source information, whereas memory for incomplete and global perceptual source information does not differentiate between “remember” and “know” judgments. The results show that the attentional focus during encoding and the specificity of retrieved source information form boundary conditions for the use of source memory for perceptual details as a basis of “remember” judgments.

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Keywords: Recognition; Conscious recollection; Remember–know paradigm; Source monitoring; Multidimensional source memory; Partial source memory; Episodic memory; Levels of processing

1. Introduction

Is the personal experience of conscious recollection related to episodic memory for the perceptual details of the recollected event? The spontaneous answer to this question is probably “yes”, and many results in the recent memory literature confirm that the subjective experience of conscious recollection is strongly related to memory for the perceptual attributes of the learning episode. In the present research, we investigated this relation further by testing new assumptions about the boundary conditions under which an association between conscious recollection and increased memory for perceptual details is exhibited or diminished,

[☆] This research was supported by a grant from the Deutsche Forschungsgemeinschaft to the first author (DFG, ME 1918/1). The authors are grateful to two anonymous reviewers for many valuable comments and suggestions on an earlier version of the paper.

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respectively. The present experiments thereby aimed to shed light on the cognitive processes underlying the experience of conscious recollection in episodic memory.

The relation between the experience of conscious recollection and memory for perceptual details has been investigated by the combination of two experimental paradigms, the remember–know paradigm and the paradigm of source monitoring. The remember–know paradigm (Gardiner, 1988; Tulving, 1985) extends recognition tests by a judgment of the experiential state that is elicited when an event is recognized as part of a previous learning list. If recognition is accompanied by a feeling of conscious recollection of the event's prior occurrence, participants complement their “old” response with a “remember” judgment. If the event is recognized on the basis of a feeling of familiarity without conscious recollection of the event's prior occurrence, participants complement the “old” response with a “know” judgment (see Gardiner, Ramponi, & Richardson-Klavehn, 2002 & Yonelinas, 2002, for reviews of this paradigm). In the paradigm of source monitoring (Johnson, Hashtroudi, & Lindsay, 1993; Mitchell & Johnson, 2000), recognized events have to be assigned to their source that indicates the events' origin in memory. In particular, source monitoring may involve retrieval of perceptual features of the events and their learning context, so that the combination of remember–know judgments and source memory decisions allows one to investigate whether conscious recollection is related to better memory for perceptual details as compared with familiarity-based recognition.

This rationale was adopted in several experiments that showed more accurate source memory for the perceptual attributes of items with a “remember” judgment than items with a “know” judgment. “Remember” judgments were associated with increased source memory for the learning condition of words that were either read or had to be completed from anagrams (Dewhurst & Hitch, 1999), for the modality of words that were presented either visually or acoustically (Humphreys et al., 2003), for the spatial location of items (Meiser & Bröder, 2002; Perfect, Mayes, Downes, & van Eijk, 1996) and for the color of an accompanying cue picture (Dudukovic & Knowlton, *in press*). Studies in which two or more context features were varied indicated that “remember” judgments were especially related to source memory for combinations of episodic details, such as the combination of cue color with a simultaneously presented pair-associate word (Dudukovic & Knowlton, *in press*) or the combination of spatial location with font size (Meiser & Bröder, 2002; Starns & Hicks, 2005). Further studies revealed that factors which facilitate “remember” judgments may also give rise to high levels of source memory accuracy (Conway & Dewhurst, 1995; Donaldson, MacKenzie, & Underhill, 1996) and that the functional characteristics of source memory for perceptual details resemble a threshold-like recollection process (Yonelinas, 1999). These results suggest that “remember” judgments and source memory for perceptual information are based on parallel, if not identical, cognitive processes. This view was further strengthened by the demonstration of similar neurophysiological correlates of “remember” judgments and correct source assignments for perceptual attributes (Rugg, Schloerscheidt, & Mark, 1998).

The converging evidence that “remember” judgments are associated with higher levels of source memory for perceptual details than “know” judgments fits the original assumption that these judgments define distinct memory processes, with “remember” judgments indicating a process of conscious recollection that is characterized by the retrieval of episodic and autobiographical details, and “know” judgments reflecting a process of familiarity that does not involve memory for episodic and autobiographical context (Gardiner, 1988; Tulving, 1985). This assumption was supported by dissociations between the rates of “remember” and “know” responses (e.g., Dewhurst & Anderson, 1999; Gardiner, 1988; Gardiner, Gawlik, & Richardson-Klavehn, 1994) and by different brain activation patterns for items classified as “remember” or “know” items (Eldridge, Knowlton, Furmanski, Bookheimer, & Engel, 2000; Henson, Rugg, Shallice, Josephs, & Dolan, 1999). Moreover, because source memory reflects the binding of item and contextual feature information in memory (Chalfonte & Johnson, 1996), the evidence that “remember” judgments are associated with increased source memory for perceptual details corroborates the notion that binding forms a distinct characteristic of the presumed process of conscious recollection (Metcalf, Cottrell, & Mencl, 1992).

The assumption of distinct memory processes for “remember” and “know” judgments has been questioned by arguments that a difference between “remember” and “know” items on a quantitative continuum of memory strength may be sufficient to account for most of the experimental data (Donaldson, 1996; Dunn, 2004; Hirshman & Master, 1997). The competing theoretical views concerning distinct memory processes as opposed to quantitative differences in memory strength have recently been reconciled by a two-dimensional strength model (Rotello, Macmillan, & Reeder, 2004). In this model, a continuum of global memory strength is

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