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Context effects in recognition memory: The role of familiarity and recollection[☆]

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Abstract

A variant of the process dissociation procedure was coupled with a manipulation of response signal lag to assess whether manipulations of context affect one or both of the familiarity and search processes described by the dual process model of recognition. Participants studied a list of word pairs (context + target) followed by a recognition test with target words presented in the same or different context, and in the same or different form as study (singular/plural). Participants were asked to recognize any target word regardless of changes to form (inclusion), or to only recognise words that were presented in the same form (exclusion). The standard context reinstatement effect was evident even at the short response lags. Analyses of the estimates of the contributions of familiarity and search processes suggest that the context effect demonstrated here can be attributed in part to the influence of familiarity on recognition, whereas the effect on recollection was less clear.

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1. Introduction

In general, reinstating the context in which an item or event was first encountered facilitates memory for that previous experience. Context effects on recognition memory have been reliably demonstrated by manipulating the relationship between pairs of words at study and test (e.g., Humphreys, 1976; Light & Carter-Sobell, 1970; Thomson, 1972; Tulving & Thomson, 1971). However, changes in environmental context have produced less consistent results (Fernandez & Glenberg, 1985; Murnane & Phelps, 1994; see also Smith & Vela, 2001 for a recent review). Variations in reports of context effects may reflect differences in the nature of the type of ‘context’ defined by the experimental situation. Hewitt (1977, cited in Godden & Baddeley, 1980) made the distinction between intrinsic context as the attributes of a stimulus that are necessarily processed during encoding (e.g., word meaning, grammatical attributes of a word) and extrinsic context as that which is not an essential part of the processing of the stimulus. Baddeley (1982) later introduced a similar distinction between interactive context and independent context. Interactive context determines the way information is encoded by the participant and independent context refers to the environment surrounding the presentation of an item (external such as physical surrounds, or internal such as participant’s mood cognitive state). More recently, Smith and Vela (2001) distinguish between non-incidental (intrinsic) contexts and incidental (or environmental) context effects. The type of context effect of interest here is more in keeping with the idea of interactive/intrinsic context, empirically demonstrated by a recognition advantage for test items presented in the same verbal context at study and test over test items paired with a different word. The aim of the experiments was to investigate the nature of the memory processes underlying the effects of verbal context reinstatement on recognition performance.

Tulving and Thomson (1973) interpret context effects on recognition memory in terms of the ‘encoding specificity principle.’ That is, reinstating the encoding context affects the accessibility of the target word so that in recognition, like recall, retrievability of an item improves if the cues present at test match the encoding environment. Anderson and Bower (1972) have also described context reinstatement effects in retrieval terms, by postulating the use of contextual markers to enhance discrimination between old and new items.

In contrast, theorists who view recognition memory as involving a single, matching process account for context effects in the assessment of the familiarity of an item. For example, Gillund and Shiffrin (1984) proposed that by incorporating information about context into the test ‘probe’ used to access memory, reinstating the study context will contribute to the assessment of the strength of the match between study and test, or its familiarity value. Clark and Gronlund (1996) provide a detailed comparison of how different global matching models account for verbal context reinstatement effects. Many of these models are capable of demonstrating how context effects can occur because “associative information contributes to the match of the test probe only when *B* is tested with *A*, but not when *B* is tested alone or with different context items” (Clark & Gronlund, 1996, p. 44).

According to dual process theories of recognition memory (e.g., Jacoby, 1991; Mandler, 1980) two memory processes contribute to the recognition decision: A fast, automatic process that is based on an assessment of the familiarity of an item and described in terms of signal detection theory (Yonelinas, 1994); and a slower recollection or search process that retrieves information about the occurrence of the item during the study episode and is consciously controlled (Jacoby,

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