

The influence of delusional ideation and dissociative experiences on the resistance to false memories in normal healthy subjects

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Received 13 December 2006; received in revised form 11 January 2008; accepted 25 February 2008

Available online 3 April 2008

Abstract

The influence of individual differences in a measure of delusional ideation (Peters et al. Delusional Inventory; Peters et al., 1999) or dissociative experiences (Dissociative Experiences Scale; Bernstein & Putnam, 1986) on the production of false memories was examined. Using a modified DRM procedure, outcomes that were consistent with the activation/monitoring account of DRM false memories (e.g., Roediger et al., 2001) were observed. In addition, it was found that scores on both scales were associated with increased rates of false recall of the non-presented lure and with a poorer performance on a measure that assessed unsuccessful source monitoring. However, neither score was associated with veridical memory. These results contribute to better understand the influence of individual differences on the resistance to false memories.

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Keywords: False memory; Delusional ideation; Dissociative experiences; Normal participants

1. Introduction

A common form of memory distortion arises when individuals erroneously attribute the source of an item's familiarity (e.g., confusing something imagined with a perception). According to the source monitoring framework (Johnson, Hashtroudi, & Lindsay, 1993), source attributions are dependent on several factors: the quality of the encoded information, the type and the amount of information that can be retrieved, and the decision processes used to evaluate the retrieved information. More precisely, our memories differ in terms of the distribution of characteristics such as perceptual (visual, auditory, etc.) and contextual (spatial and temporal) details, affective reactions, associated thoughts and cognitive operations. These averaged differences in qualitative characteristics

can then be used as diagnostic indications to properly attribute the origin of one's own memory.

A form of memory distortion in which source monitoring errors are thought to play a crucial role is false memory induced by the DRM paradigm (Roediger & McDermott, 1995). In this procedure, participants are presented with lists of words converging on associated non-presented lures (e.g., thread, pin, eye, sewing... for which the non-presented lure is NEEDLE). This method has been shown to robustly elicit high rates of false recall and false recognition (see Gallo, 2006) of the critical non-presented lure. Moreover, participants are very confident that the critical lure has occurred and are able to provide descriptions and details regarding its presentation even though it has never been presented (see Gallo, 2006). Following the activation-monitoring account (e.g., McDermott & Watson, 2001; Roediger & McDermott, 1995), false memories are thought to occur because, during the presentation of the list, the critical lure is activated as a result of a spreading of activation in an associative network that will subsequently result in its easier accessibility. During retrieval,

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rejection of the activated lure occurs when activation is correctly attributed to the participant's own thoughts and not to the item's occurrence in the list through a successful "reality monitoring" process (Johnson et al., 1993). As such, the DRM paradigm can be considered as a variant of a source monitoring task.

Several studies have shown that some people are more prone to make false memories than others (e.g., Gallo, 2006; Winograd, Peluso, & Glover, 1998). Because a large number of studies have established that normal healthy individuals may report delusional experiences (e.g., Eaton, Romanoski, Anthony, & Nestadt, 1991), Laws and Bhatt (2005) examined whether a higher susceptibility to false memories exists in normal healthy participants prone to delusional thinking. Using the DRM paradigm, they investigated memory performance in two groups of healthy participants divided according to their scores on a measure of delusional ideation (PDI). They found that compared to low PDI scorers, high PDI participants recalled significantly fewer correct words and more critical lures and other intrusions. In addition, both groups did not differ in the confidence attached to recognition of studied items although high PDI participants assigned greater confidence ratings to falsely accepted items (regardless of whether they were critical or unrelated false alarms). Thus, this study showed that delusional participants were more susceptible to false recall than low delusional scorers. However, caution should be taken in the interpretation of the recognition results because recognition was preceded by the recall task which has been shown to influence the subsequent recognition of critical lures and their phenomenological ratings (e.g., Roediger & McDermott, 1995). Furthermore, another limit of the study is that the results did not pinpoint the locus of this influence (i.e., an influence on activation and/or on monitoring processes).

Previous research has also examined whether dissociation in non-clinical groups may have an impact on the occurrence of false memories (Destun & Kuiper, 1999; Winograd et al., 1998). Indeed, studies have examined whether a tendency towards dissociative experiences is associated to a higher susceptibility to false memories using various paradigms, including the DRM paradigm. Overall, the results are somewhat mixed with some studies finding a positive association between the presence of dissociative experiences (as measured by the Dissociative Experiences Scale; DES) and the probability to produce false memories (e.g., Hyman & Billings, 1998; Winograd et al., 1998) while others not (e.g., Platt, Lacey, Iobst, & Finkelman, 1998; Winograd et al., 1998; Wright, Startup, & Matthews, 2005).

Various methodological details might explain these opposing findings such as the specific version of the DES scale used, the nature of the source monitoring task or sample characteristics. With respect to the version of the DES used, most of the studies exploring the influence of dissociation on false memories have used the original DES form in non-clinical samples (e.g., Platt et al., 1998;

Winograd et al., 1998). However, this form has been shown to result in highly skewed scores, which are often clustered at the low end of the scale, creating floor effects. Wright and Loftus (1999) administered three different forms of the DES to groups of non-clinical participants and found that one form (the DES-C) was superior in avoiding problems of floor effects and skewness. For this reason, Wright et al. (2005) reexamined the relationship between dissociative tendencies and DRM false memories with this specific form of the DES scale. Because they did not find a significant association between DRM false memories and the DES using a large sample and a form better suited to non-clinical participants, they argued that dissociation might influence some specific false memory tasks and not others. That is, the procedures showing a positive relationship between dissociation and false memories (e.g., misleading or imagination inflation paradigms) differ from the DRM procedure as they require only misattributing the source of a presented item and not the generation of the items. However, the conditions in this experiment were not optimal to show any existing difference between high and low DES scorers. Indeed, they measured the correlation between DES-C scores and the production of DRM false memories in participants exposed to different encoding and retrieval conditions (some of which increased or decreased the production of false memories). In addition, they used a longer presentation time (i.e., 4 s) during the study phase which is known to enhance false memory resistance (e.g., Mc Dermott & Watson, 2001) even in participants having source monitoring difficulties (Dehon, 2006).

In summary, previous studies exploring the influence of dissociative and delusional tendencies on false memories with the DRM paradigm have produced inconsistent results or have not been replicated. In addition, whenever a relationship has been reported between either of these two variables and the production of false memories, it remains unclear which underlying processes (i.e., activation and/or monitoring) are affected by either delusional ideation or dissociation. For these reasons, the aim of this study was to examine the influence of dissociative experiences and delusional ideation on the creation of false memories with the use of the DRM paradigm. To this purpose, normal participants were asked to complete questionnaires assessing either delusional ideation or dissociative experiences, and were presented with DRM lists in a modified DRM procedure (Brédart, 2000; Dehon, 2006) designed to obtain estimates of activation and monitoring processes. In this procedure, participants were asked after the memory test to say whether, during the learning phase or during the recall phase, a word came to their mind, but that they did not write it down during the recall task because they thought the experimenter had not produced it. This modification allowed us to examine the distribution of the critical lures throughout the experiment and to determine the best explanation for why false memories did not occur for some trials (i.e., reflecting a monitoring success vs. an

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