



Are valence and social avoidance associated with the memory conformity effect? ☆, ☆, ☆

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ABSTRACT

Pairs of participants were shown photographs which varied in terms of valence from negative to positive, and two days later, together, they were given a memory recognition test. When the first person responded the second person saw the response. This affected how the second person responded, what is called memory conformity. The memory conformity effect was larger for previously unseen stimuli (fillers) than for previously seen stimuli (targets), and was greatest for those with low scores on a social avoidance measure. While memory for negative (and most arousing) stimuli was most accurate, the memory conformity effect did not differ significantly by the stimulus valence. Implications for theories of memory malleability and for assessing the reliability of memories in a forensic context are discussed.

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1. Introduction

When two people see the same event, they often discuss it. Sometimes this is recounting a joyful event like your team winning a championship or a wedding; sometimes it is recounting a negative event like a traffic accident or a mugging. When people talk about the event their reports can become more similar, an effect called memory conformity (Roediger, 2010; Wright, Self, & Justice, 2000). Memory conformity is one particular way in which postevent information can distort memories (Loftus, 2005). Over the past decade laboratories in several countries have shown memory conformity exists and have examined some of the causal mechanisms implicated (e.g., Axmacher, Gossen, Elger, & Fell, 2010; Bodner, Musch, & Azad, 2009; Carlucci, Kieckhafer, Schwartz, Villalba, & Wright, 2011; Edelson, Sharot, Dolan, & Dudai, 2011; French, Garry, & Mori, 2008; Gabbert, Memon, & Wright, 2006; Hope, Ost, Gabbert, Healey, & Lenton, 2008; Horry, Palmer, Sexton, & Brewer, 2012; McGuire, London, & Wright, 2011; Meade & Roediger, 2002; Mori, 2007; Ost, Ghonoui, Cook, & Vrij, 2008; Paterson & Kemp, 2006a; Paterson, Kemp, & Ng, 2011;

Reysen, 2005; Roediger, Meade, & Bergman, 2001; Roos af Hjelmsäter, Granhag, Strömwall, & Memon, 2008; Seamon et al., 2009; Skagerberg & Wright, 2008a; Zajac & Henderson, 2009).

While memory conformity produces some errors, the ability to adapt one's own beliefs on the basis of what other people say is adaptive (Schacter, Guerin, & St. Jacques, 2011). When most people report a memory in natural conversation, as opposed to when they are forced to respond in a psychology study, they tend to only report what they are fairly confident about and they tend to be accurate (Koriat, Goldsmith, & Pansky, 2000). Thus, often the information about past events which is shared is accurate, and accurate postevent information can increase the accuracy of someone's memory.

The current research has three main goals. There is debate in the literature about whether memory conformity effects are larger for previously unseen items (fillers) or for previously seen items (targets). The first goal is to test if the memory conformity effect is different for fillers and for targets. The second goal is to identify if a particular individual difference measure, social avoidance, can predict who will exhibit more memory conformity. The final goal is to test whether the valence of the stimuli to be remembered is associated with the amount of memory conformity. We briefly describe each of these goals.

1.1. Is there an asymmetry for the memory conformity effect?

It is important to understand whether postevent information, of any type, can both affect the likelihood that somebody reports that

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something occurred which did not occur (a false alarm) and affect the likelihood that somebody fails to report something that did occur (a miss). This question became particularly important when researchers and practitioners began applying the findings of memory suggestibility research to the recovered memory debate (Loftus, 1997). The suggestibility research showed that both new details of an event and entirely fabricated events could be introduced into memory (Loftus, 2005). However, prior to the recovered memory debate there was little research showing whether the techniques used to create false memories could also be used to lessen the likelihood that people report true events. People arguing for the validity of recovered memories speculated that people's memories for true events could be made less accessible by a perpetrator denying that the abuse took place. Research with both children (e.g., Candel, Hayne, Strange, & Prevo, 2009; Otgaar, Candel, Smeets, & Merckelbach, 2010; Williams, Wright, & Freeman, 2002) and adults (e.g., Wright, Loftus, & Hall, 2001) showed that postevent information can both make people report non-existent events and make people fail to report real events. However, because these studies had only a couple of critical items per person, they were not powerful enough to say if one effect was larger than the other.

To compare the size of these effects it is necessary to have many critical items. Schneider and Watkins (1996) developed a social recognition memory procedure where two people are tested together so that the second person responds knowing how the first person responded. The second person's response could be based on a combination of their own memory for the stimulus and how the other person responded. Because memory recognition studies can have a large number of trials per person, this creates a powerful design to compare effects.

Wright, Mathews, and Skagerberg (2005) used this procedure to compare the size of the memory conformity effect for previously unseen fillers and previously seen targets. They found that the memory conformity effect was larger for fillers than for targets. Importantly, they presented the stimuli and tested participants during the same session, so there was only a few minutes delay. Several measures can be used to estimate the size of this effect. The log of the odds ratio is the primary effect size reported for the current study, so will be used here. The value for no association is zero. The mean across the six conditions in their first two experiments were calculated. When the items were previously unseen fillers, the effect of what the other person said was 2.03, while the effect was only 1.47 for previously seen targets. Wright et al. argued that responses for fillers were more malleable than responses for targets because it is easier to convince people that they had failed to encode an item presented only a few moments before, than that they had a false memory for a recently shown item.

Merckelbach, Van Roermund, and Candel (2007) challenged this finding. They showed participant–confederate pairs a series of photos and then asked them to take turns recalling objects in each photo. In their study, 16 of 31 (52%) of participants reported information suggested by another person, and 21 of 29 (72%) failed to report true information which had been denied by another person. The denial was explicit. After a participant recalled an item, the confederate responded: “the detail that you mention was certainly not present in this picture; otherwise I would have noticed that” (p. 577). From this they concluded “denying true information is as powerful as suggesting misinformation” (p. 537). Given that this finding contradicts each of the three studies in Wright et al. (2005), it is worth comparing these studies.

First, Merckelbach et al. used a recall task while Wright et al. used a recognition task. While memory conformity affects both recall and recognition tasks (e.g., Wright, Gabbert, Memon, & London, 2008), it is possible that some of the processes involved in memory conformity operate to different extents in recall than in recognition. The next two differences we believe are more likely to account for the different findings.

Merckelbach et al. had only two false information items per person compared with 20+ in Wright et al. This means that the power is relatively low in Merckelbach et al. and therefore their confidence intervals are wide. Using Wilson (1927) (see Agresti (2002), p. 16), the 95% confidence intervals are (35%, 68%) for adding information and (54%, 85%) for failing to report information. On the basis of the width of these intervals it may have been unwise for Merckelbach et al. to accept the null hypothesis that denying true information is as powerful as suggesting false information.

The third difference we believe is the most important. Merckelbach et al.'s confederate displayed a high level of confidence when denying an item while in Wright et al. the person just ticked old or new. Research shows that people are more affected when the other person is confident (Schneider & Watkins, 1996; Wright & Villalba, 2012). It is likely that the participant would have believed that the confederate in Merckelbach et al. was very confident when denying the item, but might not have perceived the same high level of confidence when the confederate errantly reported the presence of an object.

Wright et al. (2005) examined this asymmetry within a single testing session. Here, using a similar procedure to Wright et al.'s, we test if the memory conformity effect is the same for fillers and targets but we use a 2 day delay. It may be that people are willing to believe that they have a false memory for photos from 2 days before and therefore that denying information may have as strong an effect as reporting new information. However, it is likely that people would also be willing to believe that they would not remember an item. If both of these increase with the delay then the asymmetry should also be apparent with the 2 day delay.

1.2. Is social avoidance associated with memory conformity?

The second goal is to examine if the memory conformity effect is of the same magnitude for everyone. For memory conformity to occur, the participant must adequately process the information presented by the other person. There has been relevant individual difference research with children (Bruck & Melnyk, 2004). Several studies have compared memory suggestibility with performance on theory of mind (ToM) tasks. These tasks require that the child is able to recognize that other people can have different beliefs than themselves. Children who fail false belief tasks tend to be more suggestible on misinformation tasks (e.g., Bright-Paul, Jarrold, & Wright, 2008). However, as children get older almost all will pass ToM tasks. With older children and adults, deficits in social information processes may develop into neglect of social information. Wright, London, and Waechter (2010) examined this with a sample of adolescents. They used two measures: one measured fear of negative evaluation and one measured social avoidance. They found that adolescents who scored high on fear of negative evaluation conformed more than those who scored low when tested in the presence of the person who provided the information. Wright et al. argued that this was likely because of normative influences and note that normative influences can be particularly strong during adolescence (e.g., Berndt, 1982; Costanzo & Shaw, 1966).

The results for social avoidance are more relevant for the current study. Social avoidance is a tendency to avoid social interactions and social information. Wright et al. (2010) found that after covarying out fear of negative evaluation, social avoidance negatively correlated with suggestibility. They argued that socially avoidant people are less attuned to what other people say and therefore are less likely to act upon it. As Wright et al. is the first study to show a relationship between social avoidance and memory conformity, and given that it was found only after partialing out fear of negative evaluation, and only with adolescents, it is necessary to test if this relationship can

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