Scope

This bibliography lists citations and abstracts to articles and chapters authored and co-authored by Henry Otgaar of the Netherlands. Both English and Dutch language publications are included.

Organization

Publications are listed in date-descending order. Links are provided to full text documents when possible.

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Publications of Henry Otgaar

A Bibliography


This study addressed the impact of mindfulness on source monitoring. Participants engaged in a brief mindfulness meditation or received no intervention. Next, all participants watched a video of a crime and were then exposed to misinformation regarding this video. Using a source monitoring test, participants’ memory performance was measured. Participants who performed the mindfulness meditation showed better source monitoring compared to controls. Mindfulness practice was not found to enhance memory performance. Mindfulness practice may entail an effective way to circumvent memory distortions due to incorrect source monitoring.


Obtaining an elaborate witness statement is essential for police investigations. Free recall, however, sometimes lacks richness of detail, especially in younger witnesses. Drawing from deception detection and educational psychological literature, we tested the beneficial value of a model statement to enhance recall quantity without decreasing accuracy in 48 adults (Experiment 1), and in 110 7- to 10-year-old children and 14- to 17-year-old adolescents (Experiment 2). Participants either listened to an unrelated account (i.e., model statement) or performed a filler task prior to recalling a target event witnessed 1 week earlier. We replicated age increases in statement quantity and age-related decreases to suggestive follow-up questions. No effect of model statement was found. Reasons for why a model statement was ineffective and recommendations are discussed. (PsycINFO Database Record (c) 2017 APA, all rights reserved)
In the legal field, victims and offenders frequently lie to avoid talking about serious incidents, such as past experiences of sexual abuse or criminal involvement. Although these individuals may initially lie about an experienced event, oftentimes these same people eventually abandon their lies and are forthcoming with what truly happened. To date, it is unclear whether such lying affects later statements about one’s memory for the experienced event. The impetus of the present review is to compile the current state of knowledge on the effects of lying on memory. Based on existing literature, we will describe how deceptive strategies (e.g., false denials) regarding what is remembered may affect memory in consequential ways, such as forgetting of details, falsely remembering features that were not present, or a combination of both. It will be argued that the current literature suggests that mnemonic outcome is contingent on the type of lie and we will propose a theoretical framework outlining which forms of lying likely result in certain memory outcomes. Potential avenues of future research also will be discussed.

Expert witnesses can play a major role in legal cases concerning the reliability of statements. Abuse cases frequently contain only the memories of eyewitnesses/victims without the presence of physical evidence. Here, it is of the utmost importance that expert witnesses use scientific evidence for their expert opinion. In this case report, a case is described in which 20 children reported being sexually abused by the same teachers at their elementary school. The investigative steps that were taken by the police and school authorities are reviewed, including how they probably affected memory. In order to provide a sound expert opinion regarding the reliability of these statements, three recommendations are proposed. To reduce the effect of confirmation bias and increase
objectivity, it is argued that expert witnesses’ reports should contain alternative scenarios, be checked by another expert, and focus on the origin and context of the first statement.


We examined whether typical developmental trends in suggestion-induced false memories (i.e., age-related decrease) could be changed. Using theoretical principles from the spontaneous false memory field, we adapted two often-used false memory procedures: misinformation (Experiment 1) and memory conformity (Experiment 2). In Experiment 1, 7/9-year old children (n = 33) and adults (n = 39) received stories containing associatively-related details. They then listened to misinformation in the form of short narrative preserving the meaning of the story. Children and adults were equally susceptible to the misinformation effect. In Experiment 2, younger (7/8-year olds, n = 30) and older (11/12-year-olds, n = 30) children and adults (n = 30) viewed pictures containing associatively-related details. They viewed these pictures in pairs. Although the pictures differed, participants believed they had viewed the same pictures. Participants had to report what they could recollect during collaborative and individual recall tests. Children and adults were equally susceptible to memory conformity effects. When correcting for response bias, adults’ false memory scores were even higher than children’s. Our results show that age trends in suggestion-induced false memories are not developmentally invariant.


We examined the creation of spontaneous and suggestion-induced false memories in maltreated and non-maltreated children. Maltreated and non-maltreated children were involved in a Deese–Roediger–McDermott false memory paradigm where they studied and remembered negative and neutral word lists. Suggestion-induced false memories were created using a misinformation procedure during which both maltreated and non-maltreated children viewed a negative video (i.e., bank robbery) and later received suggestive misinformation concerning the event. Our results
showed that maltreated children had higher levels of spontaneous negative false memories but lower levels of suggestion-induced false memories as compared to non-maltreated children. Collectively, our study demonstrates that maltreatment both increases and decreases susceptibility to memory illusions depending on the type of false memory being induced.


Brewin and Andrews (2016) reviewed the literature on false memory propensity for childhood events. In this commentary, we critically evaluate their basic claim that proneness to false memories of childhood experiences is more limited than has been articulated in the literature. We show that Brewin and Andrews were selective in their inclusion of false memory studies, thereby ignoring relevant research related to autobiographical false memories. Equally important, and in contrast to what Brewin and Andrews claim, we show that implanted false memories elicited by misinformation are characterized by high confidence. Copyright © 2016 The Authors *Applied Cognitive Psychology* Published by John Wiley & Sons Ltd.


In the current experiments, we attempted to elicit nonbelieved memories (NBMs) using the Deese/Roediger–McDermott (DRM) false memory paradigm. Furthermore, by using this approach, we explored the consequences of nonbelieved true and false memories. In Experiments 1 and 2, participants received several DRM wordlists and were presented with a recognition task. After the recognition task, participants’ statements were contradicted by giving them feedback about true and false items. In this way, we succeeded in eliciting nonbelieved true and false memories. In Experiment 2, participants were also involved in a modified perceptual closure task after receiving belief-relevant feedback. In this task, participants received degraded visual representations of words (e.g., false and true) that became clearer over time. Participants had to identify them as fast as possible. We also measured dissociation, compliance, and social
desirability. We found that undermining belief had contrasting consequences for true and false memories. That is, nonbelieved true memories were identified more slowly whereas nonbelieved false memories were identified more quickly. We did not find any relation between our individual differences measures and the formation of NBMs.


Brewin and Andrews recently argued that expert witnesses should be cautious when informing the legal arena about the potential for false memories. We argue that memory researchers—whose studies often were inspired by miscarriages of justice due to erroneous statements provided by witnesses, victims, or defendants—can and should emphasize the base rates of false memories. After all, even if Brewin and Andrews’ estimate of 15% is an accurate higher bound estimate of false memories in real life cases, neglecting the science of false memories could lead to many more unnecessary miscarriages of justice. Copyright © 2016 John Wiley & Sons, Ltd.


Memories of events for which the belief in the occurrence of those events is undermined, but recollection is retained, are called nonbelieved memories (NBMs). The present experiments examined the effects of NBMs on subsequent problem-solving behaviour. In Experiment 1, we challenged participants’ beliefs in their memories and examined whether NBMs affected subsequent solution rates on insight-based problems. True and false memories were elicited using the Deese/Roediger–McDermott (DRM) paradigm. Then participants’ belief in true and false memories was challenged by telling them the item had not been presented. We found that when the challenge led to undermining belief in false memories, fewer problems were solved than when belief was not challenged. In Experiment 2, a similar procedure was used except that some
participants solved the problems one week rather than immediately after the feedback. Again, our results showed that undermining belief in false memories resulted in lower problem solution rates. These findings suggest that for false memories, belief is an important agent in whether memories serve as effective primes for immediate and delayed problem-solving.


Witnesses are frequently questioned immediately following a crime. The effects of such testing on false recall are inconclusive: Testing may inoculate against subsequent misinformation or enhance false memory formation. We examined whether different types of processing can account for these discrepancies. Drawing from Fuzzy-trace and Associative-activation theories, immediate questions that trigger the processing of the global understanding of the event can heighten false memory rates. However, questions that trigger the processing of specific details can inoculate memories against subsequent misinformation. These effects were hypothesized to be more pronounced in children than in adults. Seven/eight-, 11/12-, 14/15-year-olds, and adults (N = 220) saw a mock-theft film and were tested immediately with meaning or item-specific questions. Test results on the succeeding day replicated classic misinformation and testing effects, although our processing hypothesis was not supported. Only adults who received meaning questions benefited from immediate testing and, across all ages, testing led to retrieval-enhanced suggestibility. © 2016 The Authors. Applied Cognitive Psychology Published by John Wiley & Sons, Ltd.


In this case report, a legal case revolving around the reliability of statements given by a 6-year-old girl is described. She claimed to have witnessed her mother being murdered by her father. Two psychological experts provided diametrically opposed opinions about the reliability of her statements. One expert, a clinician, opined that the girl's statements were based on autosuggestion whereas the other expert, a memory researcher, stated that autosuggestion was unlikely to have
played a role. This case and the analysis of the experts' opinions illustrate what may happen when experts in court are unaware of the recent literature on (false) memory. That is, recent studies show that autosuggestion is less likely to occur in young children than in older children and adults. The current case stresses the importance and implications of relying on memory experts in cases concerning the reliability of eyewitness statements.


In the present experiment, we were interested in the effects of drawings and practice on children’s memory performance. Younger (6/7-year-olds; n = 37) and older (11/12-year-olds; n = 44) children were presented with two videos that differed in complexity. Half of the children had to practice recalling an experienced event (i.e., last holiday) before remembering the two videos. The other half was not presented with such practice. Then, all children had to tell what they could still recollect about the first video. For the second video, all children were allowed to draw and tell during the recollection of the event. As expected, we found that for the complex video, making a drawing increased the completeness of children’s statements, but also reduced the accuracy of their statements. Although we found that including practice reduced the completeness of statements, it did not negatively impact the accuracy of children’s memory reports. Taken together, our results imply that interviewers should be cautious in using drawings as an interviewing method as it might elevate the production of incorrect information.

Research on how people respond to social challenges to existing memories indicates that they sometimes defend belief in the veridicality of the memory, and sometimes relinquish belief in memories. In some instances, they report retaining a strong sense of recollection despite the loss of belief. The current research explored how adults and children respond to social challenges to recalled events using an adaptation of Goff and Roediger’s (1998) imagination inflation procedure. Adult participants performed, imagined, or heard action statements (e.g., break the toothpick), imagined actions multiple times, and 2 weeks later completed a recognition test in which they made source monitoring judgments for 113 actions. For actions indicated by participants as “performed,” randomly selected items were challenged via verbal feedback suggesting that the action was not originally performed. Study 1 included 30 adult participants who received a total of 142 challenges. The memory was defended for 61.3% (retaining believed memories) and belief or recollection was relinquished for 38.7% of challenged items. In Study 2, 31 children aged 7 to 8 years received 187 challenges. The memory was defended for 48.9% and belief or recollection was relinquished for 51.1% of challenged items. The method elicited both defense and memory relinquishment of memories in a majority of participants. In both experiments, challenges to true memories were less likely to be accepted than challenges to false memories.


In three experiments, we examined the memory-undermining effects of daydreaming for (un)related stimuli. In Experiments 1 and 2, we tested whether daydreaming fosters forgetting of semantically interrelated material and hence, catalyzes false memory production. In Experiment 3, we examined the memory effects of different daydreaming instructions. In Experiment 1, daydreaming did not undermine correct recall of semantically interrelated words, nor did it affect false memories. In Experiment 2, we again failed to find that daydreaming exerted memory-undermining effects. In Experiment 3, no memory effects were obtained using different...
daydreaming instructions. Together, our studies fail to show appreciable memory-undermining effects of daydreaming.


Among many legal professionals and memory researchers there exists the assumption that susceptibility to false memory decreases with age. In 4 misinformation experiments, we show that under conditions that focus on the meaning of experiences, children are not always the most susceptible to suggestion-induced false memories. We begin by presenting a short overview of previous developmental false memory studies, the majority of which have found that the susceptibility to misinformation decreases with age. In Experiment 1, 6/7-year-olds, 11/12-year-olds, and adults received a video and were confronted with misinformation about related but nonpresented details. Older children and adults had higher misinformation acceptance rates than younger children. In Experiment 2, we replicated this finding adding a younger child group (4/6-year-olds). In Experiments 3 and 4, we used new material and again found that susceptibility to misinformation increased with age. Together, these experiments show that children’s memory accuracy is not necessarily inferior to that of adults.’ (PsycINFO Database Record (c) 2016 APA, all rights reserved)


We examined the mnemonic effects of false denials. In a previous experiment (Otgaar, Howe, Memon, & Wang, 2014), false denials resulted in participants denying that they talked about details with the experimenter when in fact they did. This denial-induced forgetting (DIF) was further examined. In Experiment 1, participants received pictures and their belief and memory for details were tested. In the false denial group, participants had to falsely deny in response to each question. In the external denial group, an experimenter falsely denied to the participants that certain details were present. The control group had to answer the questions honestly. We found evidence
for DIF. In Experiment 2, we used a video and again found DIF. Moreover, when the experimenter provided external denials, nonbelieved memory rates increased. Together, our experiments suggest that false denials undermine memory while external denials appear to reduce belief.


Despite considerable interest in understanding how stress influences memory accuracy and errors, particularly in children, methodological limitations have made it difficult to examine the effects of stress independent of the effects of the emotional valence of to-be-remembered information in developmental populations. In this study, we manipulated stress levels in 7–8- and 12–14-year-olds and then exposed them to negative, neutral, and positive word lists. Shortly afterward, we tested their recognition memory for the words and false memory for non-presented but related words. Adolescents in the highstress condition were more accurate than those in the low-stress condition, while children’s accuracy did not differ across stress conditions. Also, among adolescents, accuracy and errors were higher for the negative than positive words, while in children, word valence was unrelated to accuracy. Finally, increases in children’s and adolescents’ cortisol responses, especially in the high-stress condition, were related to greater accuracy but not false memories and only for positive emotional words. Findings suggest that stress at encoding, as well as the emotional content of to-be-remembered information, may influence memory in different ways across development, highlighting the need for greater complexity in existing models of true and false memory formation.


In the eyewitness identification literature, stress and arousal at the time of encoding are considered to adversely influence identification performance. This assumption is in contrast with findings from the neurobiology field of learning and memory, showing that stress and stress hormones are critically involved in forming enduring memories. This discrepancy may be related to
methodological differences between the two fields of research, such as the tendency for immediate testing or the use of very short (1–2 hours) retention intervals in eyewitness research, while neurobiology studies insert at least 24 hours. Other differences refer to the extent to which stress-responsive systems (i.e., the hypothalamic–pituitary–adrenal axis) are stimulated effectively under laboratory conditions. The aim of the current study was to conduct an experiment that accounts for the contemporary state of knowledge in both fields. In all, 123 participants witnessed a live staged theft while being exposed to a laboratory stressor that reliably elicits autonomic and glucocorticoid stress responses or while performing a control task. Salivary cortisol levels were measured to control for the effectiveness of the stress induction. One week later, participants attempted to identify the thief from target-present and target-absent line-ups. According to regression and receiver operating characteristic analyses, stress did not have robust detrimental effects on identification performance. Copyright © 2016 John Wiley & Sons, Ltd. © 2016 The Authors Behavioral Sciences & the Law Published by John Wiley & Sons Ltd.


The purpose of this paper is to examine the beneficial effect of a modified cognitive interview (MCI) on adolescents’ testimonies in case of a negative emotional event. Furthermore, the authors were interested in assessing the impact of a MCI on within-statement consistency. In total, 37 adolescents (12-15 years) watched a emotionally negative video and were interviewed, seven days later, with a MCI or a structured (control) interview (SI). Results showed that adolescents interviewed with the MCI reported significantly more correct and tended to report more incorrect information than those interviewed with the SI. Nonetheless, this rise in incorrect details did not impair the accuracy of statements gathered with the MCI (vs SI). Moreover, consistent, reminiscent, and forgotten information within a statement was positively linked to overall accuracy. In conclusion, testimonies gathered with the MCI might be perceived as more complete and detailed than the ones gathered with the SI. The improvement of interview techniques helps solving criminal cases. The innovative aspect of this work is that the benefits of the cognitive interview (CI) and the absence of an effect of inconsistency on accuracy are now also seen among adolescents.

It is a widely held opinion among lay persons and legal practitioners that children’s testimony is inferior to that of adults. Even though previous research and cases have shown that children can develop false memories, we argue that this does not imply that their eyewitness reports are necessarily poor. In fact, there are circumstances in which children are less vulnerable to false memories than adults. This is also true for a subset of situations that sometimes become the focus of criminal investigations and in which children appear in court as eyewitnesses. In fact, different types of false memories increase with age including false memory types that are at the forefront of many legal cases concerning the reliability of children’s statements. Legal professionals should be aware of the conditions under which children are competent and those under which they are less reliable as witnesses.


Good self-control has been linked to adaptive outcomes such as better health, cohesive personal relationships, success in the workplace and at school, and less susceptibility to crime and addictions. In contrast, self-control failure is linked to maladaptive outcomes. Understanding the mechanisms by which self-control predicts behavior may assist in promoting better regulation and outcomes. A popular approach to understanding self-control is the strength or resource depletion model. Self-control is conceptualized as a limited resource that becomes depleted after a period of exertion resulting in self-control failure. The model has typically been tested using a sequential-task experimental paradigm, in which people completing an initial self-control task have reduced self-control capacity and poorer performance on a subsequent task, a state known as ego depletion. Although a meta-analysis of ego-depletion experiments found a medium-sized effect, subsequent meta-analyses have questioned the size and existence of the effect and identified instances of possible bias. The analyses served as a catalyst for the current Registered Replication Report of the ego-depletion effect. Multiple laboratories (*k* = 23, total *N* = 2,141) conducted replications of a standardized ego-depletion protocol based on a sequential-task paradigm by Sripada et al. Meta-
analysis of the studies revealed that the size of the ego-depletion effect was small with 95% confidence intervals (CIs) that encompassed zero ($d = 0.04$, 95% CI $[-0.07, 0.15]$). We discuss implications of the findings for the ego-depletion effect and the resource depletion model of self-control.


In their paper, Takarangi, Strange, and Lindsay (2014) showed in two experiments that participants who had witnessed a shocking film frequently “mind-wandered without awareness” about the content of the film. More importantly, they equated this effect with the occurrence of traumatic intrusions. In this commentary, we argue that the authors adhered to conceptually ambiguous terms, and thereby unintentionally contribute to an already existing conceptual blur in the trauma-memory field. We postulate that clear definitions are urgently needed for phenomena such as intrusions, flashbacks, and mind-wandering, when using them in the context of trauma memory. Furthermore, our proposal is that these phenomena can fall under a spectrum of different involuntary memory instances. We propose that by adopting stricter definitions and viewing them as separate, but interrelated phenomena, different lines of trauma-memory research can be reconciled, which would considerably advance the field. © 2014 Elsevier Inc. All rights reserved.


The negative features of false memories are frequently at the foreground of false memory research. However, it has become increasingly apparent that false memories also have positive consequences. In two experiments, we examined the positive consequences of false memories. Participants were visually presented with false memory word lists and received a recognition task. In a modified perceptual closure test, participants received degraded visual representations of words (false, true, and unrelated items) that became clearer over time. Participants had to identify them as fast as possible. Identifications based on false memories were significantly faster than
those based on true memories and (un)related items. A roughly similar pattern was observed when no recognition task was used and when critical lures were replaced with other items (Experiment 2). Our results indicate that false memories can be beneficial for problem-solving tasks and counter the standard perspective that false memories are inherently negative in nature.


The current experiment was designed to assess the mnemonic consequences of false denials and forced confabulations. Children (6- to 8- and 10- to 12-year-olds) and adults viewed a video and their memory and belief about the event were tested. Participants were then divided into three groups. In the Cued Recall condition, participants were asked to answer true- and false-event questions, but could choose not to respond if they did not know the answer. In the Forced Confabulation group, participants received the same set of questions, but were forced to answer all of them. In the False Denial group, participants were instructed to falsely deny in response to each question. One week later, participants received a source memory test, and they had to provide memory and belief ratings once more. Forced confabulations resulted in false memories in the youngest group. Moreover, our analyses showed that repeated false denials led to children and adults to be highly inclined to falsely deny that they had talked to the experimenter about certain presented details when in fact they had done so. Furthermore, false denial and nonbelieved memory rates were more pronounced in younger than in older children and adults. Our results imply that denying experienced events is not a good strategy in an interviewing setting as it adversely affects memory statements about the interview.


In a recent paper, Fernández (in press) argues that memory distortion can have beneficial outcomes. Although we agree with this, we find his reasoning and examples flawed to such degree
that they will lead to misunderstandings rather than clarification in the field of memory (distortion). In his paper, Fernández uses the terms belief and memory incorrectly, creating a conceptual blur. Also, Fernández tries to make the case that under certain circumstances, false memories of abuse are beneficial. We argue against this idea as the reasoning behind this claim is based on controversial assumptions such as repression. Although it is true that memory distortions can be beneficial, the examples sketched by Fernández are not in line with recent documentation in this area.


The current study examined the role of item-specific, relational, and elaborative processing on adaptive memory. Younger and older adults received the standard survival processing, a survival-short, or a pleasantness processing instruction. The survival-short condition was specifically included to lead to fewer possibilities to engage in elaborative processing. Furthermore, half of the presented words were categorized words to boost relational processing. Younger adults demonstrated the typical survival recall advantage in that standard survival processing instructions resulted in superior free recall performance than that of the survival-short and the pleasantness processing groups. Among older adults, no mnemonic benefit of standard survival processing relative to the survival-short or pleasantness processing groups was found. Furthermore, reducing the probability of elaborative processing (i.e., through the survival-short processing instructions) abolished the survival recall advantage. Our results thus provide further evidence for the role of item-specific, relational, and elaborative processing in the survival processing advantage.


Memories are usually believed to represent genuine past events. While previous researches mainly focus on believed memories, a recent research line has discovered that memories can exist without accompanying beliefs. That is, one can have vivid images or recollections of an event that he knows never happened. Vivid memories of non-existent events are called nonbelieved memories.
and in fact, 25% of people hold these kinds of memories. By using techniques such as memory implantation technique and faked videos, nonbelieved memories for certain events can be elicited in the labs. With the discovery and study of this new memory phenomenon, we point out that research on nonbelieved memories can help reveal whether our belief, recollection, or both determine our behaviour and has implications on a broad range of topics in areas such as psychopathology and legal psychology.


It is without question that our memory system evolved through a process of natural selection. However, basic research into the evolutionary foundations of memory has commenced with earnest only recently. This is quite peculiar as the majority, perhaps even all, of memory research relates to whether memory is adaptive or not. In this Special Issue, we have assembled a variety of papers that represent the cutting edge in research on the evolution of memory. These papers are centered on issues about the ultimate and proximate explanations of memory, the development of the adaptive functions of memory, as well as the positive consequences that arise from the current evolutionary form that our memory has taken. In this article we briefly outline these different areas and indicate why they are vital for a more complete theory of memory. Further, we argue that by adopting a more applied stance in the area of the evolution of memory, one of the many future directions in this field could be a new branch of psychology that addresses question in evolutionary legal psychology.


We found evidence that the usual developmental trends in children’s spontaneous false memories were eliminated using novel stimuli containing obvious themes. That is, children created more false memories than adults when scenes had to be remembered. In Experiment 1, 7/8-year-olds had higher false memory rates than adults when using visual scenes. Experiment 2 showed that gist cuing could not account for this effect. In Experiment 3, children and adults received visual
scenes and story contexts in which these scenes were embedded. For both types of stimuli, we found that children had the highest false memory rates. Our results indicate that the underlying theme of these scenes is easily identified resulting in our developmental false memory trend.


Recent studies have revealed that memory is enhanced when information is processed for fitness-related purposes. The main objective of the current experiments was to test developmental trends in the evolutionary foundation of memory using different types of stimuli and paradigms. In Experiment 1, 11-year-olds and adults were presented with neutral, negative, and survival-related DRM word lists. We found a memory benefit for the survival-related words and showed that false memories were more likely to be elicited for the survival-related word lists than for the other lists. Experiment 2 examined developmental trends in the survival processing paradigm using neutral, negative, and survival-related pictures. A survival processing advantage was found for survival-related pictures in adults, for negative pictures in 11/12-year-olds, and for neutral pictures in 7/8-year-olds. In Experiment 3, 11/12-year-olds and adults had to imagine the standard survival scenario or an adapted survival condition (or pleasantness condition) that was designed to reduce the possibilities for elaborative processing. We found superior memory retention for both survival scenarios in children and adults. Collectively, our results evidently show that the survival processing advantage is developmentally invariant and that certain proximate mechanisms (elaboration and distinctiveness) underlie these developmental trends.


In this paper, we review the state of knowledge about a previously assumed to be rare memory phenomenon called nonbelieved memories. Nonbelieved memories refer to a counterintuitive phenomenon in which vivid autobiographical memories are no longer believed to have happened although vivid recollective features remain present. Such memories stand in contrast to the more typical situation that when events are recollected they are also believed to have genuinely occurred. Data regarding the frequency, characteristics, and factors that contribute to the development of
naturally occurring and laboratory induced nonbelieved memories is reviewed. Relationships of nonbelieved memories to theories of autobiographical remembering and the study of remembering in applied domains are discussed.


Prior studies have convincingly demonstrated that survival-related processing of information enhances its subsequent retention. This phenomenon, known as the survival recall advantage, generalises to other stimuli, memory domains, and research populations, thereby underscoring its reliability. As previous studies used only short retention intervals between survival processing and the memory test, an important yet hitherto unanswered issue is whether this effect persists over time. The present experiment therefore examined whether survival processing also produces mnemonic benefits when retention is tested after longer delay periods. Participants (*N* =81) rated the relevance of words according to a survival and a moving scenario, and were then randomly assigned to the typical immediate (3-minute delay) retention test condition or conditions that included a 24- or 48-hour interval between survival processing and memory testing. In each of these conditions survival processing led to higher surprise free recall and recognition rates than processing words according to the moving scenario. Thus this study provides evidence that illustrates the longevity of survival processing advantages on memory performance.


In two experiments we tested the choice blindness phenomenon in adolescents aged 11–16 years (Experiment 1, *N*=87) and children aged 7–10 years (Experiment 2, *N*=117) for the first time. Analogous to previously reported findings with adult participants, we expected to replicate the robust effect in these age groups. Furthermore, we investigated the hypothesis that self-relevance of choices, defined as the extent to which the self is implicated in a choice, moderates the choice blindness effect in adolescents and children. To this end, we directly compared high and low self-relevance conditions. As expected, the choice blindness effect was robust across age groups. Little
support was found for the idea that self-relevance moderates the choice blindness effect. Specifically, no effect of self-relevance on choice blindness was found in adolescents, while the findings in the child sample were inconsistent. Different possible interpretations of the results as well as the possible role of ambiguity for the choice blindness effect are discussed.


The scientific study into the functional properties of memory has recently undergone a rapid increase. These studies reveal that processing stimuli for its survival value results in superior memory performance in children and adults. In the current article, we critically evaluate this claim and conclude that survival-processing advantages in childhood and adulthood are not an indication that fitness-relevant information has adaptive priority. Instead, we argue that general memory principles (e.g., item-specific and relational processing, self-reference, elaboration and distinctiveness) are more probative explanations of the functional engineering of memory. We stress the importance of these memory processes because these are the processes that comprise our memory adaptation, are present early in life, and are developmentally invariant.


We report on the first experimental elicitation of nonbelieved memories for childhood events in adults and children (Study 2) using a modified false memory implantation paradigm. Participants received true (trip to a theme park) and false (hot air balloon ride) narratives and recalled these events during two interviews. After debriefing, 13% of adults and 15% of children reported nonbelieved memories. While phenomenal ratings were higher for true than for nonbelieved
memories immediately after the debriefing, after a month nonbelieved memories behaved as true memories. Also following debriefing, 23% of adults and 15% of children retracted their false memory claims. Prior to debriefing, participants with nonbelieved memories were most likely to indicate remembering the event while participants with false memories who retracted their claim were most likely to endorse believing but not remembering the event. This research suggests that debriefings in previous false memory studies can lead to the development of nonbelieved memories. Additional findings regarding the correspondence between subjective belief, subjective memory, and objective memory judgments prior to and following debriefing are discussed.


An emerging area of memory research is showing that a certain type of false memory called spontaneous false memories follows a developmental trajectory that is the opposite of what is commonly assumed in false memory research. That is, spontaneous false memories are more likely to occur in adults than in children. The present study focused on developmental trends of different types of spontaneous false memories. Specifically, in the current study, 6-8-year-olds, 10-12-year-olds, and adults were presented with two methods to induce spontaneous false memories. That is, participants were presented with semantically-related words lists that are commonly used to evoke spontaneous false memories (i.e, Deese/Roediger-McDermott (DRM) paradigm). Furthermore, they were presented with a video in which related details were not shown but were presented during a recognition task. Our results showed that children were more likely to form false memories than adults in the video false memory paradigm whereas DRM false memories were more evident in adults than in children. Furthermore, we found that on a general level, DRM false memories were positively related to video spontaneous false memories. We explain that stimuli that contain obvious themes attenuate or even reverse developmental trends in spontaneous false memories.

The functioning and frailties of memory are frequently at the centerpiece of much expert testimony about the reliability of eyewitness accounts. Although we have much knowledge about how false memories and suggestibility can affect testimonies, the contributions in this special issue show that when using a sound theoretical framework, novel directions in this field can surface. The papers in this issue can broadly be divided into contributions that are related to: (1) the exact determinants of false memory and suggestibility; (2) new paradigms in legal psychology; (3) positive consequences of memory illusions; and (4) developmental false memory research. Collectively, these contributions have the potential to provide novel shifts in memory research and push this field beyond its current boundaries. Copyright © 2013 John Wiley & Sons, Ltd.


Several studies have found that children with callous-unemotional (CU) traits have a deficit in processing emotionally negative material. The present study examined whether this deficit also affects emotional memory. Twenty-two children with low CU traits and 24 children with high CU traits between 8 and 12 years of age were selected from a community sample and presented with neutral and negative emotional words, using the Deese-Roediger-McDermott paradigm. On true recall, there was no difference between the groups. Both groups had higher true recall rates for the neutral word lists than for the negative lists. However, on false recall, although there were no group differences for neutral word lists, the high CU group recalled significantly fewer critical lures on the negative word lists than the low CU group. Furthermore, the high CU group had significantly less false recall on the negative word lists compared to the neutral word lists, while the low CU group showed no difference in false recall between the word lists. These results indicate that
children with high CU traits have no deficiencies in true memory performance, yet are less susceptible to developing false memories concerning emotionally negative material.


The primary aim of the current study was to examine whether depleted cognitive resources might have ramifications for the formation of neutral and negative spontaneous false memories. To examine this, participants received neutral and negative Deese/Roediger–McDermott false memory wordlists. Also, for half of the participants, cognitive resources were depleted by use of an ego depletion manipulation (solving difficult calculations while being interfered with auditory noise). Our chief finding was that depleted cognitive resources made participants more vulnerable for the production of false memories. Our results shed light on how depleted cognitive resources affect neutral and negative correct and errant memories. 2012 Elsevier Inc. All rights reserved.


Studies show that engaging in self-control results in deteriorated performance on subsequent tasks. In legal settings, witnesses and/or suspects are probably involved in self-control (e.g. controlling their emotions). The current study tested whether such involvement in self-control would lead to increased suggestibility levels. We found direct evidence for this. Forty-four participants were randomly divided into a high level of depletion condition (regulation of attention) or a low level of depletion condition (no regulation of attention). Also, they were presented with a suggestibility measure (Gudjonsson Suggestibility Scale). We showed that depleted participants were significantly more suggestible than non-depleted participants. Our findings are relevant in situations in which suggestive practices may take place. Copyright © 2011 John Wiley & Sons, Ltd.

The purpose of the current study was to examine the effect of clothed and unclothed human figure drawings (HFDs) on children’s reports of touch. Eighty 4/5-year-olds and 80 9/10-year-olds participated in a staged event in which measurements of their body parts (e.g., waist-line) were taken. Specifically, they were touched on ten different locations. Immediately or three weeks after the event, they had to report where they had been touched. Half of the children received a clothed HFD while the other half was provided with an unclothed HFD to assist children in their recall. When we compared children’s recall before and after the presentation of a HFD, we found that clothed and unclothed HFDs significantly decreased the accuracy of children’s reports of touch. So, although children reported more correct touches after the presentation of a HFD, they were also more likely to include more incorrect information in their reports of touch.


The present study examined the impact of divided attention on children's and adults' neutral and negative true and false memories in a standard Deese/Roediger–McDermott paradigm. Children (7- and 11-year-olds; n = 126) and adults (n = 52) received 5 neutral and 5 negative Deese/Roediger–McDermott word lists; half of each group also received a divided attention task. The results showed that divided attention affected children's and adults' false memory levels differently but did not alter true memory differently. Our results revealed a developmental shift in that divided attention lowered children's false memory rates but increased adults' false memory rates, regardless of the nature of the material (i.e., neutral or negative). Our study indicates that manipulations that target conscious processing (e.g., divided attention) result in marked qualitative and quantitative differences between children's and adults' false memories but not true memories. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

A longstanding question in false memory research is whether children’s implanted false memories represent actual memory traces or merely result from compliance. The current study examined this question using a response latency based deception task. Forty-five 8-year-old children received narratives about a true (first day at school) and false event (hot air balloon ride). Across two interviews, 58/32% of the participants developed a partial/full false memory. Interestingly, these children also showed higher false recall on an unrelated DRM paradigm compared to children without a false memory. The crucial finding, however, was that the results of the deception task revealed that children with partial and full false memories were faster to confirm than to deny statements relating to the false event. This indicates that children’s implanted false memories reflect actual memory traces, and are unlikely to be explained by mere compliance. © 2012 Elsevier B.V. All rights reserved.


The present study examined whether repeatedly providing additional script knowledge of an event would boost the development of children’s implanted false memories. Seventy-two 7- to 9-year-old children listened to a true narrative about their first day at school and a false narrative describing that they went to a burns centre when they were four years old. Children were randomly allocated to one of three groups: one group without additional script knowledge and two groups that received a video about the two events to promote additional event-related script knowledge of which one group had to view the video repeatedly (i.e. once a day). Across two interviews, children were encouraged to tell everything they remembered about the events. Results showed that at the second interview, children who were presented with the additional script knowledge were more likely to develop a false memory than the children who did not receive additional script knowledge. Copyright © 2012 John Wiley & Sons, Ltd.

A number of recent studies investigating (meta-)memory have detected that memory accuracy is decreased in schizophrenia and that at the same time patients hold false information with strong conviction. The aim of the present study was to test whether increasing meta-memory awareness (i.e., forewarning) could attenuate this pattern of results. Forty-seven schizophrenia patients and 47 healthy controls were administered two pictures of a visual false memory paradigm, one with forewarning and the second without. After both pictures, a recognition task required participants to make old-new discriminations along with confidence ratings. Results showed that, although the standard memory and meta-memory response patterns were replicated in this study, in which schizophrenia patients show decreased memory accuracy and knowledge corruption, the initial forewarning did not influence the robustness of these meta-memory deficits within schizophrenia patients.


Traditionally, recovered memories of childhood sexual abuse (CSA) have been classified as those emerging spontaneously versus those surfacing during the course of suggestive therapy. There are indications that reinterpretation of memories might be a third route to recovered memories. Thus, recovered memories do not form a homogeneous category. Nevertheless, the conceptual distinctions between the various types of recovered memories remain difficult for researchers and clinicians. With this in mind, the current study explored whether recovered memories can be reliably classified. We found that classification is rather problematic in a subset of cases. To reduce potential bias, we urge for the development and subsequent use of a more reliable classification system and multiple expert raters in research on recovered memories.

The purpose of this study was to examine whether choice blindness occurs for auditory stimuli, namely voices. One hundred participants listened to three pairs of voices and had to decide each time which one they found more sympathetic or sounded more criminal. After they made a choice, participants were presented with the chosen voice again and had to match it to a face. However, during the second trial, participants were actually presented with the voice they had previously not chosen. Only 19% of the participants detected this change concurrently, an additional 10% detected it retrospectively. This indicates that choice blindness transfers to auditory stimuli. Whether participants had previously evaluated sympathy or criminality of the voices had no effect on choice blindness. The study shows that choice blindness is a robust phenomenon that can also be elicited when auditory stimuli are employed. Implications for earwitness testimony and expert witnesses in the context of forensic speech analysis are discussed.


False memory implantation studies are characterised by suggestions indicating that specific unremembered events occurred, attributing suggested events to a knowledgeable source (e.g., parents), and including true events that provide evidence that this source was consulted. These characteristics create a particular retrieval context that influences how individuals come to believe that false events occurred. Two studies used a variant of implantation methods to vary the proportion of events attributed to parents and the presence of true events within the suggestion. In Study 1 participants received six false events, and were told that all or some events came from parents. Participants told that all of the events came from parents formed more and stronger false beliefs. In Study 2 participants also received two true events, and a third group was told that half of the events came from their parents. Participants given the specific ratio (“half”) endorsed more false beliefs, and beliefs between the other groups no longer differed. Across both studies participants told that some events came from parents reported stronger memory phenomenology. The effect of suggestions on false beliefs in implantation studies depends partly on the credibility of suggestions derived from providing information about the source of suggested events.

Recent studies have found that processing information according to an evolutionary relevant (i.e., survival) scenario improves its subsequent memorability, potentially as a result of fitness advantages gained in the ancestral past. So far, research has not revealed much about any proximate mechanisms that might underlie this so-called survival processing advantage in memory. Intriguingly, research has shown that the memorability of stressful situations is enhanced via the release of stress hormones acting on brain regions involved in memory. Since survival situations habitually involve some degree of stress, in the present study, we investigated whether stress serves as a proximate mechanism to promote survival processing. Participants rated words for their relevance to either a survival or a neutral (moving) scenario after they had been exposed to a psychosocial stressor or a no-stress control condition. Surprise retention tests immediately following the rating task revealed that survival processing and acute stress independently boosted memory performance. These results therefore suggest that stress does not serve as a proximate mechanism of the survival processing advantage in memory.


A limited number of studies have shown that adults and adolescents with psychopathic traits suffer from emotional memory impairment. The present study examined whether this finding could be replicated in a sample of children between 8 and 12 years of age with callous-unemotional (CU) traits. Children with high CU traits (n= 24) were compared with children with low CU traits (n= 18) with regard to performance on a peripheral memory recognition test that examined memory for central and peripheral components of neutral and negative pictures. Results showed that overall recognition rates did not differ between the high- and low-CU groups. For negative pictures, both groups demonstrated better recognition of the central component at the expense of the peripheral component, while for neutral pictures, the peripheral component was better recognized than the central component. This study is the first to demonstrate that children with high CU traits do not suffer from an impaired emotional memory. Copyright # 2012 John Wiley & Sons, Ltd.

The aim of the present study was to examine whether two different false memory paradigms (DRM vs suggestion) produce similar results. In Experiment 1, 100 children from four age groups (5/6-year-olds, 7/8-year-olds, 9/10-year-olds, and 11/12-year-olds) were instructed to remember lists of semantically related words (DRM paradigm) and to complete a children's suggestibility measure (i.e. BTSS-NL). Results showed that children's false memories for non-presented words increased with age while accepting suggestive information decreased with age. Moreover, no significant relation was found between children's susceptibility to the DRM illusion and concurring to suggestive information. In Experiment 2, DRM false recall and recognition was compared between children with \((n=20)\) and without \((n=20)\) false memories for entire events. Children with implanted false memories did not falsely recall and recognize more critical lures than children without implanted false memories. This study shows that children's DRM intrusions are not related to their acceptance of suggestive information.


Studies have shown that survival processing leads to superior memorability. The aim of the present study was to examine whether this survival recall advantage might result from stereotype activation. To test this hypothesis, we conducted a pilot study and two experiments in which participants were primed with stereotypes (Experiment 1, professor and elderly person; Experiment 2, survival-stereotype). In Experiment 1, 120 undergraduates were randomly assigned to a survival, professor stereotype, elderly person stereotype, or moving scenario and rated words for their relevance to the imagined scenario. In Experiment 2, 75 undergraduates were given a survival, survival-stereotype (based on our pilot study), or moving scenario. Both experiments showed that survival processing leads to a greater recall advantage over the stereotype groups and control group. These data indicate that the mere activation of stereotypes cannot explain the survival recall advantage.

Brain imaging studies suggest that truth telling constitutes the default of the human brain and that lying involves intentional suppression of the predominant truth response. By manipulating the truth proportion in the Sheffield lie test, we investigated whether the dominance of the truth response is malleable. Results showed that frequent truth telling made lying more difficult, and that frequent lying made lying easier. These results implicate that 1) the accuracy of lie detection tests may be improved by increasing the dominance of the truth response and that 2) habitual lying makes the lie response more dominant.


Across five experiments we examined the role of valence in children’s and adults’ true and false memories. Using the Deese/Roediger-McDermott paradigm and either neutral or negative emotional lists, both adults’ (Experiment 1) and children’s (Experiment 2) true recall and recognition was better for neutral than negative items and although false recall was also higher for neutral items, false recognition was higher for negative items. The last three experiments examined adults’ (Experiment 3) and children’s (Experiments 4 and 5) one-week long-term recognition of neutral and negative-emotional information. The results replicated the immediate recall and recognition findings from the first two experiments. More important, these experiments showed that although true recognition decreased over the one-week interval, false recognition of neutral items remained unchanged whereas false recognition of negative-emotional items increased. These findings are discussed in terms of theories of emotion and memory as well as their forensic implications.


The present study examined the efficacy of the reality monitoring (RM) criteria in differentiating between children's true and false memories. Two independent judges rated 190 transcripts of children's true and false memory reports along the RM criteria. Results showed that, overall, the RM criteria failed to distinguish between children's accounts of true and false events. However, when examining each RM criterion separately, we found that more visual details were present in children's true memories than in their false memories. Results also showed that more RM criteria were present at the second interview than at the first interview.


We examined whether script knowledge contributes to the development of children’s false memories. Sixty 7-year-old and 60 11-year-old children listened to false narratives describing either a high-knowledge event (i.e., fingers being caught in a mousetrap) or a low-knowledge event (i.e., receiving a rectal enema) that were similar in terms of plausibility and pleasantness. Moreover, half of the children in each condition received additional suggestive details about the false events. Across two interviews, children had to report everything they remembered about the events. Script knowledge affected children’s false memories in that both younger and older children developed more false memories for the high-knowledge event than for the low-knowledge event. Moreover, at the first interview, additional suggestive details inhibited the development of children’s images into false memories. 2009 Elsevier B.V. All rights reserved.
The current study explored how misleading information affects children’s omissions and commissions over time. Fifty-nine younger children were instructed to remove three pieces of clothing from a puppet. Half of them were provided with false evidence that they had removed only two items, while the other half were provided with false evidence that they had removed a fourth piece of clothing. In three neutral interviews separated by 1-week intervals, children had to report which pieces of clothing they had removed. Overall, omission and commission errors significantly decreased over time, although this pattern was more pronounced for omission errors. Younger and older children were equally likely to make omission errors, whereas commission errors were more typical for younger than for older children. Also, we found that commission errors more readily occur than omission errors. Even when children’s memory reports pertain to an event in which they actively participated, misleading information may elicit omission and commission errors, with especially the latter category being very persistent over time.


We explored whether children’s suggestion-induced omission errors are caused by memory erasure. Seventy-five children were instructed to remove three pieces of clothing from a puppet. Next, they were confronted with evidence falsely suggesting that one of the items had not been removed. During two subsequent interviews separated by one week, children had to report which pieces of clothing they had removed. Children who during both interviews failed to report that they had removed the pertinent item (i.e., omission error; n = 24) completed a choice reaction time task. In this task, they were presented with different clothing items. For each item, children had to indicate whether or not they had removed it. Significantly more errors were made for those removed items that children failed to report than for those they had not removed. This indicates that children’s suggestion-based omission errors are not due to erasure of memories. 2009 Elsevier Inc. All rights reserved.

Research has shown that processing information in a survival context can enhance the information’s memorability. The current study examined whether survival processing can also decrease the susceptibility to false memories and whether the survival advantage can be found in children. In Experiment 1, adults rated semantically related words in a survival, moving, or pleasantness scenario. Even though the survival advantage was demonstrated for true recall, there also was an unexpected increase in false memories in the survival condition. Similarly, younger and older children in Experiment 2 displayed superior true recall but also higher rates of false memories in a survival condition. Experiment 3 showed that in adults false memories were also more likely to occur in the survival condition when categorized lists instead of Deese-Roediger-McDermott (DRM)-like word lists were used. In all three experiments, no survival recall advantage was found when net accuracy scores that take the total output into account were used. These findings question whether survival processing is an adaptive memory strategy per se, as such processing not only enriches true recall but simultaneously amplifies the vulnerability to false memories.


Recent studies have shown that processing words according to a survival scenario leads to superior retention relative to control conditions. Here, we examined whether a survival recall advantage could be elicited by using pictures. Furthermore, in Experiment 1, we were interested in whether survival processing also results in improved memory for details. Undergraduates rated the relevance of pictures in a survival, moving, or pleasantness scenario and were subsequently given a surprise free recall test. We found that survival processing yielded superior retention. We also found that distortions occurred more often in the survival condition than in the pleasantness condition. In Experiment 2, we directly compared the survival recall effect between pictures and words. A comparable survival recall advantage was found for pictures and words. The present findings support the idea that memory is enhanced by processing information in terms of fitness
value, yet at the same time, the present results suggest that this may increase the risk for memory distortions.


This study examined whether prevalence information promotes children’s false memories for an implausible event. Forty-four 7–8 and forty-seven 11–12 year old children heard a true narrative about their first school day and a false narrative about either an implausible event (abducted by a UFO) or a plausible event (almost choking on a candy). Moreover, half of the children in each condition received prevalence information in the form of a false newspaper article while listening to the narratives. Across two interviews, children were asked to report everything they remembered about the events. In both age groups, plausible and implausible events were equally likely to give rise to false memories. Prevalence information increased the number of false memories in 7–8 year olds, but not in 11–12 year olds at Interview 1. Our findings demonstrate that young children can easily develop false memories of a highly implausible event.


The present study examined the role of valence in the development of children’s implanted false memories. Seventy-six 7-year-old children listened to two true and one false narrative. The false narrative was either neutral (“moving to another classroom”) or emotional negative (“being accused by the teacher for copying off your neighbor”). In addition, half of the children were presented with their class photograph while listening to the narratives. During two interviews, children recalled as many details as possible from the true and false events. Results showed that
the negative event elicited more false memories than the neutral event. The presentation of a true photograph did not promote the development of false memories. © 2008 Elsevier B.V. All rights reserved.


Adrenal stress hormones released in response to acute stress may yield memory-enhancing effects when released post-learning and impairing effects at memory retrieval, especially for emotional memory material. However, so far these differential effects of stress hormones on the various memory phases for neutral and emotional memory material have not been demonstrated within one experiment. This study investigated whether, in line with their effects on true memory, stress and stress-induced adrenal stress hormones affect the encoding, consolidation, and retrieval of emotional and neutral false memories. Participants (N = 90) were exposed to a stressor before encoding, during consolidation, before retrieval, or were not stressed and then were subjected to neutral and emotional versions of the Deese—Roediger—McDermott word list learning paradigm. Twenty-four hours later, recall of presented words (true recall) and non-presented critical lure words (false recall) was assessed. Results show that stress exposure resulted in superior true memory performance in the consolidation stress group and reduced true memory performance in the retrieval stress group compared to the other groups, predominantly for emotional words. These memory-enhancing and memory-impairing effects were strongly related to stress-induced cortisol and sympathetic activity measured via salivary alpha-amylase levels. Neutral and emotional false recall, on the other hand, was neither affected by stress exposure, nor related to cortisol and sympathetic activity following stress. These results demonstrate the importance of stress-induced hormone-related activity in enhancing memory consolidation and in impairing memory retrieval, in particular for emotional memory material. © 2008 Elsevier Ltd. All rights reserved.