Distorted by Emotion: Influence of Emotion on Suggestibility and Memory Distortion

Hayden Kern

2024

Introduction

Memory is a fundamental human function necessary for learning, decision-making, and day-to-day functioning. We place a lot of trust in our memories to help us navigate our world,

whether remembering groceries or suspects after a crime. However, memories are not completely static, as some may believe, and can be distorted or changed over time. Memories are reconstructed from the salient cues in the environment during encoding, but ambiguity can lead to distortion. One way that memories get distorted is through suggestibility. Suggestibility occurs when memories become influenced by external information, framing, the timing of encoding, and the emotional context that impacts accuracy when recalling information. This can result in the creation of false memories, a phenomenon where someone recalls something that never happened or recalls it differently than it occurred. Emotions can play a major role in shaping memories by making them more vivid and durable. However, the salience of emotion on memory can also impact misinformation and suggestibility. Understanding how and why these distortions happen can be important for legal settings, therapy, and combatting media misinformation. One technique that allows researchers to induce false memories through suggestibility is the misinformation paradigm. This technique shows subjects misleading information about an event they just witnessed. They are then given a recognition task to see how misinformation impacts the individual's recollection of the original task/narrative. Using these methods, researchers can induce different emotional states to understand how emotions may influence suggestibility and distort memory.

Cognition of Suggestibility and False Memories

Memory suggestibility occurs when an individual's recollection is influenced by misleading information. Suggestibility can be induced through the wording of questions, biased information, or new narratives that provide details that differ from factual events. This influence creates false memories or recollections that never occurred or differ from reality. Loftus and Palmer conducted a study about the impact of leading questions to show the influence of

suggestibility. Participants were asked how fast cars were going before they either "smashed" or "hit" the car in front of them. Subjects with the phrasing of "smashed" into the car tended to report seeing broken glass in comparison to subjects who were asked how fast the car was going when they "hit" each other (Loftus & Palmer, 1974). This study shows the power of leading questions and how they can alter the details in memory just from phrasing. It also demonstrates that memory is reconstructive, not reproductive, and can be influenced by environmental cues rather than being exact retrievals of past events.

In a similar study by Loftus, Miller, and Burns (1978), researchers wanted to demonstrate how details in memory could be altered after an event occurred using misleading information. They found that by altering subjects' recollections of key details, such as by asking about a yield sign not present, they could guide subjects into misremembering details that were not present. The results show how misinformation from interviewing techniques can create false memories and alter existing memories.

False memories arise from the same cognitive processes that allow for normal memory function but are influenced by misinformation, misattribution, and the fact that memories can easily change during recall (Loftus, 1997). The dual-process theory explains how these false memories develop (Roediger et al., 2001). Dual-process theory states that recall involves familiarity and recollection, with familiarity being a rapid and automatic feeling that makes the event feel like something happened, while recollection is a conscious retrieval of the details of an event. A study by McDermott and Watson (2001) tested the dual process account of false memories and found that people rely on familiarity when recollection is ambiguous or uncertain. In conditions where misleading cues feel familiar, this can lead to the creation of false memories.

These studies show how suggestibility can lead to false memories through misinformation, framing effects, and the passage of time. The dual-process theory gives insights into how reliance on familiarity when information is uncertain leads to the development of false memories. While these processes play a significant role in suggestibility, emotions should influence each of these factors and even exaggerate them in different circumstances.

Emotions and Memory

To understand how emotions influence suggestibility and distort memory from misinformation, it is essential to understand the role of emotions play in memory. Emotional roles in memory are focused on levels of arousal and valence. Arousal refers to the strength of a specific emotional state, while valence refers to whether the emotional state is positive or negative. While arousal has been found to enhance memory properties, it has also been found to narrow focus and attention (Kensinger, 2009). Narrowing attention can increase the central details of an emotional event and diminish peripheral details. When attention is focused on central details, it may lead to memory deficits and pronounced susceptibility to misinformation (Kaplan et al., 2015). Valence has also been found to affect memory, with negative information creating a higher sense of vividness than positive information (Kensinger, 2009). Since emotional states can enhance memory properties and focus on details, they should also impact the vulnerability to misinformation, especially negative information.

Mood-congruent memory (MCM) also shows how emotional states can enhance memory properties. MCM is the tendency for one to recall information that is congruent with one's current mood. For example, when someone experiences a negative mood, they are more likely to remember negative memories and details. MCM has also been found to elicit false memories in

the Deese-Roediger-McDermott (DRM) paradigm. These tests show how mood influences the chance of inaccurately recalling memories congruent with an emotional state (Faul & LaBar, 2023). Thus, individuals may be more likely to incorporate misleading information that matches their current emotional state, leaving them more vulnerable to memory distortions and suggestibility when in congruent emotional states.

Emotional states and information can also impact the creation and salience of false memories. Emotional content has been found to contribute to the creation of false memories, as demonstrated in the 'Lost in the Mall' study (Loftus & Pickrell, 1995). This study created a false memory of being lost in a mall as a child that was meant to elicit a strong emotional response. By involving an emotionally salient event, subjects were more persuaded to believe the implanted memory and recall the false event (Loftus & Pickrell, 1995). By factoring in an emotional state, the researchers increased suggestibility, making subjects more likely to accept these false memories as true. Research also has shown that the emotional intensity of memory does not make that memory true. A study done by Laney and Loftus (2008) also found that false memories could exhibit the same level of emotional vividness, confidence, and details as actual memories. Just because a memory feels authentic because of the emotional context it brings does not mean it is accurate and thus can enhance the believability of false recollections. Emotions impact memory through levels of arousal, valence, and mood-congruent influence on memory recall that can leave memories more susceptible to misinformation. While emotional states can enhance recall, they can also make it more likely for individuals to accept false memories as accurate. By understanding the vulnerabilities of memory recall and emotion, we can understand the context in which misinformation and suggestibility can be influenced.

Suggestibility and Emotions

Given the impact of emotional factors on memory formation, these variables likely also influence susceptibility to suggestion and misinformation. Studies have investigated how arousal and valence can enhance or impair memory and their effect on suggestibility and false memories. First, high arousal has been found to enhance a memory's accuracy in some contexts but does not protect against false memories induced by suggestion (Sharma et al., 2022; Van Damme & Smets, 2014). As discussed earlier, high arousal has been found to narrow attention and focus (Kensinger, 2009), which, while enhancing the recall of an event's central traits, also means that peripheral details are more malleable and ambiguous. This effect is known as "emotional memory narrowing," where states of arousal can cause an individual to focus more on central information and ignore peripheral information that can open the door for increased suggestibility (Van Damme & Smets, 2014). Since peripheral information gets overlooked, any misinformation used to fill in the gaps of the peripheral information can be accepted as true. Increased focus produced by arousal was also theorized to help prevent suggested memories. However, it was found to have minimal impact on the susceptibility to misinformation unless a significant delay was introduced between the event and recall. This suggests that arousal may protect against suggestion-induced false memories if there is a long memory consolidation process (Sharma et al., 2022). However, these findings were under low arousal (stress), which may not represent the intensity of stress that can occur in real-world scenarios. While moderate amounts of stress may help protect against misinformation, the more intense stress becomes, may increase the effects of suggestibility (Sharma et al., 2022). The evolutionary perspective gives insights as to why this may happen as negative emotions send signals to make a behavior change, meaning when faced with danger, we need to focus on the most critical (central) details of a scene, thus disregarding any peripheral details (Van Damme & Smets, 2014). Emotional memory narrowing under high

arousal leads to implications in legal and therapeutic environments. For example, in therapeutic settings, therapists may influence patients' recollections of a traumatic event by focusing on specific details that reinforce the creation of false memories based on peripheral information about the experience. Understanding the influence of arousal on suggestibility helps to mitigate these negative consequences.

Emotional valence also plays a fundamental role in how memories are formed, recollected, and influenced by misinformation. While positive and negative emotions affect memory, they also have different processes that impact susceptibility to false memories. Negative valence has been found to have a greater tendency to be vulnerable to misinformation due to an increased focus on central details (Sharma et al., 2022; Van Damme & Smets, 2014; Porter et al., 2010). Specifically, negative valence has been suggested to increase an individual's vulnerability to the creation of false memories. Individuals were found to be more likely to incorporate misleading details when recalling negative events than positive ones, showing greater acceptance of inaccuracies in peripheral information (Porter et al., 2010). Negative valence images also had more attention than positive valence images, with those subjects having a higher tendency to endorse false central memories (Van Damme & Smets, 2014). Valence may influence how individuals process information as people with positive moods feel more sure of themselves, while sadness is associated with low self-efficacy, leading them to attach greater importance to externally provided information, leading to increased susceptibility to misinformation (Van Damme & Seynaeve, 2013). Understanding how valence impacts suggestibility allows us to explore these negative emotional states. These specific states can change the intensity of an experience and thus affect the memory process and suggestibility.

Distinct emotional states can impact how memories are formed and manipulated. Emotional states like anger have been found to alter cognitive processing, leading to reduced skepticism and increased susceptibility to misinformation (Greenstein & Franklin, 2020). Anger triggers rapid cognition, causing us to feel the need to act quickly when making decisions. One study found that when rapid and confident memory decisions were being made, it increased the likelihood of believing false memories (Greenstein & Franklin, 2020). Anger was found to enhance the individuals' confidence in false memories but not the accuracy of memory, suggesting that anger could increase the risk of accepting false information in high-stakes environments (Greenstein & Franklin, 2020). This confidence can also be problematic when addressing juries, as the more confident one is perceived, the more believable they are. Similarly, emotional states of sadness increase one's confidence in false memories, suggesting that these states could impact the likelihood of false memories being suggested (Van Damme & Seynaeve, 2013). It was also found that sadness increased the tendency for individuals to accept and trust misleading suggestions and also the tendency to rely on information given prior to an event (Van Damme & Seynaeve, 2013). Sadness, in particular, is associated with low self-efficacy, causing individuals to rely on others when information is ambiguous, hence, they may be more likely to accept misleading information. Emotional states' influences on memory and suggestibility have implications in legal courts, therapy, and social media. For example, in a legal context, juries are persuaded by the level of confidence a witness displays. If a witness's emotional state increases the confidence in memory with misinformation, it can lead to false convictions. Training police and legal councils should incorporate these findings to help diminish the impact of emotional states on memory distortions. By understanding the impact emotions have on suggestibility, we can better combat the consequences they bring.

Conclusion

Emotions can play a significant role in memory suggestibility and influence the reliability of these recollections. Memories are far from perfect, and understanding how false memories occur from emotional influence on suggestibility and misinformation sheds light on these imperfections. Valence and arousal can enhance our accuracy for central details but also predispose individuals to increased suggestibility with peripheral details being ignored. Specific negative emotional states can alter these cognitive processes and affect the perceived accuracy of memories. The real-world implications of these results can be found in legal settings, therapy, and media narratives. Juries can be influenced by false confidence, and therapists can create false memories when exploring trauma by reinforcing inaccuracies fueled by these emotions. In an era where media misinformation has become the new norm, recognizing the interaction between emotion and memory suggestibility becomes even more important. Public awareness and education about the implications must be addressed to help stop the spread of misinformation. By understanding the interactions between memory, suggestibility, and emotion, we can better deal with the problems that memory distortions bring.

References

Faul, L., & LaBar, K. S. (2023). Mood-congruent memory revisited. Psychological Review, 130(6), 1421-1456. doi:https://doi.org/10.1037/rev0000394

Greenstein, M., & Franklin, N. (2020). Anger increases susceptibility to misinformation. Experimental Psychology, 67(3), 202-209. doi:https://doi.org/10.1027/1618-3169/a000489

Kaplan, Robin & Van Damme, Ilse & Levine, Linda & Loftus, Elizabeth. (2015). Emotion and False Memory. Emotion Review. 8. 10.1177/1754073915601228.

Kensinger, E. A. (2009). Remembering the details: Effects of emotion. Emotion Review, 1(2), 99-113. doi:https://doi.org/10.1177/1754073908100432

Laney, C., & Loftus, E. F. (2008). Emotional content of true and false memories. Memory, 16(5), 500–516. https://doi-org.proxybz.lib.montana.edu/10.1080/09658210802065939

Loftus, E. F. (1997). Creating childhood memories. Applied Cognitive Psychology, 11(7), S75–S86. https://doi-org.proxybz.lib.montana.edu/10.1002/(SICI)1099-0720(199712)11:7<S75::AID-ACP514>3.0.CO;2-F

Loftus, E. F., Miller, D. G., & Burns, H. J. (1978). Semantic integration of verbal information into a visual memory. Journal of Experimental Psychology: Human Learning and Memory, 4(1), 19-31. doi:https://doi.org/10.1037/0278-7393.4.1.19

Loftus, E.F., & Pickrell, J.E. (1995). The Formation of False Memories. Psychiatric Annals, 25, 720-725.

Porter, S., McDougall, A., Bellhouse, S., ten Brinke, L., & Wilson, K. (2010). A prospective investigation of the vulnerability of memory for positive and negative emotional scenes to the misinformation effect. Canadian Journal of Behavioural Science, 42(1), 55-61. Retrieved from

https://www.proquest.com/scholarly-journals/prospective-investigation-vulnerability-memory/docview/220494932/se-2

Roediger III, H. L., Balota, D. A., & Watson, J. M. (2001). Spreading activation and arousal of false memories. In H. L. Roediger III, J. S.Nairne, I. Neath, & A. M. Surprenant (Eds.), The nature of remembering: Essays in honor of Robert G. Crowder (pp. 95–115). Washington, DC, US: American Psychological Association. doi:10.1037/10394-006

Shah, D. (2023). The Role of Negative Emotion on Suggestibility Using the Misinformation Paradigm. (Unpublished Doctoral thesis, City, University of London) Retrieved from https://openaccess.city.ac.uk/id/eprint/31893/

Sharma, P. R., Wade, K. A., & Jobson, L. (2022). A systematic review of the relationship between emotion and susceptibility to misinformation. Memory, doi:https://doi.org/10.1080/09658211.2022.2120623

Van Damme, I., & Seynaeve, L. (2013). The effect of mood on confidence in false memories. Journal of Cognitive Psychology, 25(3), 309–318. https://doi-org.proxybz.lib.montana.edu/10.1080/20445911.2013.769440

Van Damme, I., & Smets, K. (2014). The power of emotion versus the power of suggestion: Memory for emotional events in the misinformation paradigm. Emotion, 14(2), 310-320. doi:https://doi.org/10.1037/a0034629