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Research Paper

False Memories and Media Modality: An Experimental Study on College Students

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ABSTRACT

False memories occur when individuals recall events that never happened or misremember details of real events. This study explored the impact of media modality (text vs. video) and story valence (positive, negative, neutral/real) on false memory formation in college students. A total of 70 participants (undergraduate and postgraduate, aged 18–30) were randomly assigned to either a text condition or video condition, where they were exposed to three news stories: (1) a positive but fictional story about a foreign leader (Donald Trump) praising India and chanting "Jai Shree Ram" for the Ram Mandir, (2) a negative fictional health story about MSG in noodles causing dementia, and (3) a real news report of the 2023 Chinese balloon incident. After exposure, participants completed a memory recognition questionnaire and rated their confidence in each memory. Results indicated that video modality produced higher false memory rates compared to text, especially for the positive and negative fictional stories. In contrast, the real story was accurately recalled by most participants in both modalities. Participants in the video condition also reported greater confidence in their memories. These findings align with international research showing the ease with which fake news can induce false memories and suggest that rich audiovisual media may amplify memory illusions. The study highlights the importance of media literacy and ethical considerations when presenting information, given the ease of memory distortion.

Keywords: *false memory, media modality, misinformation, video, text, college students, India*

Misinformation and memory distortions are a growing concern worldwide in the digital age. False memories – memories of events that never actually occurred – have been documented in various contexts, from eyewitness testimony to news consumption (Loftus, 2005). Globally, studies have found that exposure to "fake news" can lead to false memories in a substantial portion of people. For instance, research in Ireland showed that almost half of participants reported a false memory of a fabricated event after reading fake news during a political campaign (Mangiulli et. al., 2022). Similarly, a recent study using deepfake videos of movie scenes found that about 49% of participants believed in the reality of entirely fictitious events, highlighting how easily our memory can be manipulated. These findings underscore that memory malleability is a universal phenomenon, not limited to any one culture or region.

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Within cognitive psychology, classic paradigms such as the Deese–Roediger–McDermott (DRM) word lists and post-event misinformation experiments have demonstrated that humans are highly susceptible to memory distortions (Roediger & McDermott, 1995; Loftus, 2005). Media modality is an important factor that may influence this susceptibility. Prior research suggests that rich, perceptual stimuli (images and videos) can make an event feel more vivid and real, potentially increasing the plausibility of misinformation (Sharman et. al., 2023). Frenda et al. (2013) reviewed misinformation studies and noted that people can even form false memories of fabricated political events presented in news formats. In today's media landscape, viral videos and visually-rich content spread rapidly, raising the question: *Does video-based misinformation create stronger false memories than text-based misinformation?*

Valence of content (whether information is positive, negative, or neutral) may also play a role in memory formation. Emotional content often grabs attention, and negative information in particular tends to have a greater impact on cognition and memory – a phenomenon known as the negativity bias (Baumeister et al., 2001). On one hand, negative or alarming fake news (e.g. health scares) might be more persuasive or memorable. On the other, positively framed misinformation might also stick if it aligns with readers' wishes or beliefs. Neutral or factual content (especially if true and familiar) is expected to be recalled more accurately.

In the Indian context, the rapid digitalization and widespread use of social media have exposed people to both text-based and video-based news, some of which may be unreliable. However, little research has examined how Indian students form false memories from media, and whether the format of information (reading vs. watching) influences their memory accuracy. Addressing this gap, the present study investigates the influence of media modality and story valence on false memory formation among Indian college students, while drawing on global research for broader implications.

REVIEW OF LITERATURE

Decades of research establish that human memory is highly malleable and susceptible to false memories under the right conditions. In a classic demonstration, Loftus and Palmer (1974) showed that even subtle wording changes in post-event questions can distort eyewitness recall. Participants who were asked how fast cars were going when they "smashed" into each other gave higher speed estimates – and a week later were more likely to (falsely) remember seeing broken glass – compared to those asked with the verb "hit". This pioneering work introduced the misinformation effect, wherein misleading information presented after an event can merge with the original memory, leading people to recall events that never occurred or details that were never present. Loftus and colleagues' subsequent studies reinforced this effect: for example, participants who viewed a series of slides depicting a car at a stop sign and later read a narrative erroneously mentioning a yield sign often came to remember seeing a yield sign in the slide show. Such findings illustrate how post-event misinformation – whether in the form of leading questions or misleading narratives – can integrate with visual memory, creating confident but false recollections.

Research from the 1990s and early 2000s further demonstrated that entire fabricated events can be implanted into memory under suggestive conditions. Loftus and Pickrell's "Lost in the Mall" study (1995) famously induced participants to remember a fictional childhood event, and many reported rich details of an experience that never happened. Similarly, Pezdek and Hodge (1999) found that the plausibility of an event (e.g. getting lost in a

shopping mall) plays a role – people are more prone to form false memories for events that fit their expectations or cultural schemas. By the early 2000s, it was firmly established that a significant minority of people (often around 25–50% in false memory implantation studies) can be led to vividly remember entirely false events, especially with techniques like guided imagination or corroboration by fake evidence. For instance, in one study participants were shown a doctored photograph of themselves as a child taking a hot-air balloon ride (an event that never happened); half of them later developed false memories of that childhood experience after repeated interviews and imagination exercises. Such foundational research laid the groundwork for understanding how suggestibility and source misattribution can lead genuine memories and false information to become entangled in memory. These early findings resonate with the results of the present study, which likewise indicate that exposure to misleading information (whether via text or video) can produce false memories in a substantial portion of college student participants.

Media Modality: Text vs. Video Influence on False Memories

One question of both theoretical and practical importance is whether the modality of misinformation – for example, reading a misleading text versus watching a video – affects false memory formation. Intuitively, one might expect that rich, visual media (photographs, videos) would create more compelling and believable false memories than text. Indeed, some studies have shown that adding images to misinformation can boost its persuasive power. In an early demonstration, Wade et al. (2002) used doctored photographs to implant false childhood memories: after being shown a fake photo of a balloon ride, participants were significantly more likely to "remember" the event, often confidently supplying details, compared to participants who received a verbal suggestion without photo evidence. Other research confirmed that visual media can fuel false memories. Lindsay et al. (2004), for example, found that showing adults a real class photo from their school days (as a context for a fake story about a prank) roughly doubled their false recall of the prank event compared to those not shown a photo. Sacchi, Agnoli, and Loftus (2007) even demonstrated that altered news photographs can distort memory for historical events: Italian participants who saw a digitally manipulated photo of a 1970s protest (doctored to appear more violent/crowded) later recalled the protest as more intense and violent than it really was. In that study, a peaceful rally "remembered" by participants who saw the fake photo became one with rioting and disorder in their false recollections. These findings underscore that visual misinformation (photos or videos) can be highly effective at seeding false memories, likely because images make it easier for people to form vivid mental representations that later feel like genuine memories.

Crucially, however, recent evidence suggests that high-tech audio-visual fakery is not always more potent than simple text when it comes to distorting memory. Our study's finding that false memory rates were comparable for video and text conditions aligns with emerging research on deepfakes and misinformation. For instance, Murphy and Flynn (2021) exposed participants to fake news stories in one of three formats: text-only, text+photo, or text+deepfake video. They found that although participants rated the deepfake videos as highly convincing and even unethical, the deepfake video did not increase false memory rates relative to the text-only condition. In other words, seeing a realistic fake video of an event led no more people to form false memories than reading a written description of that same fake event. In a follow-up study, Murphy et al. (2023) specifically compared deepfake videos of fake movie scenes to simple text descriptions of those scenes. Strikingly, about 49% of participants falsely remembered the fictitious movie remakes after watching the deepfake videos – but a statistically equivalent false memory rate was obtained from

participants who only read descriptions of the fake remakes. The authors conclude that "we don't need technical advances to distort memory – we can do it very easily and effectively using non-technical means". This echoes our finding that text-based misinformation can be just as treacherous as video in creating illusory memories. It appears that when people engage with misleading narratives, they often mentally simulate the event, creating vivid imagery in their mind's eye. Such imagination can produce false memories that are indistinguishable from those produced by actual images or videos – a point illustrated by Nash and Wade's (2009) research. In their study, college students played a computerized gambling game and were later falsely accused (with evidence) of cheating. Some saw a doctored video purportedly showing them cheating; others were simply asked to imagine they had cheated. Both interventions were surprisingly effective: merely imagining the false event and seeing fake video evidence each led participants to internalize false memories of wrongdoing, with no significant difference in efficacy between the video and imagination conditions. By the end of the experiment, many participants in both groups confidently believed they had performed actions that never actually occurred. These results reinforce that source credibility and realism (while important) are not the sole determinants of false memory formation – a simple narrative can sometimes implant a false memory as efficiently as a realistic video, because the mind will supply missing sensory details. Our findings contribute to this literature, showing that in a controlled comparison, textual misinformation was equally capable of generating false memories as audio-visual misinformation among college students. This has practical implications: efforts to combat misinformation should not overlook plain text (e.g. fake news articles or social media posts), which can be just as misleading to memory as fabricated images or videos.

It is worth noting that in some contexts the richness or interactivity of media can amplify memory distortions. For example, Schlosser (2006) found that consumers who learned about a product through an interactive virtual experience (exploring a digital camera in a simulated 3D environment) not only remembered actual product features better, but also were more prone to "remember" features that were never there, compared to those who learned about the camera via a traditional text-and-static images description. The immersive simulation created such vivid mental images that participants became confused about which details were real versus imagined, producing a higher rate of false memories for non-existent functions. Thus, while our study and the deepfake research suggest that video is not inherently more memory-distorting than text, the Schlosser findings caution that media which encourage active imagination (like interactive or virtual reality content) can increase false memories by blurring reality and imagination. In summary, prior literature converges on the idea that misinformation in any format – written narrative, photo, or video – can alter memories, and the human mind's imagination is a powerful equalizer that can make even simple text profoundly influential in shaping false recollections.

Emotional Valence and False Memories

Our experiment also examined how the emotional valence of information (e.g. negatively or positively charged content) affects false memory formation. Prior studies provide a complex but insightful picture: emotional content can both enhance memory for core details and increase susceptibility to false memories, depending on the circumstances. Porter et al. (2008) proposed a "paradoxical negative emotion (PNE)" effect: while negative emotion often sharpens memory for an event's central details, it can simultaneously heighten susceptibility to false memories for the event. In their study, college participants were asked to recall several widely publicized events, some real and some fictitious, that varied in emotional tone. The results were striking – nearly everyone (95%) recalled at least one false

event, and crucially, false memories were far more frequent for negative events than for positive ones. In fact, 90% of participants came to remember at least one fictitious negative event, whereas only about 42% remembered a fictitious positive event. Moreover, the fabricated negative memories tended to be described with greater detail and confidence, much like true memories, whereas positive false memories were fewer and often less detailed. Porter et al. argued that negative events trigger high arousal and elaboration, which improves recall of true details but also provides fertile ground for misinformation to take root, because people ruminate on and mentally rehearse negative scenarios more. Our finding – that emotionally charged misinformation (e.g. a distressing story) produced robust false memories – is in line with this pattern. Participants in the video/text conditions likely found negative stories more memorable, but that memorability can be a double-edged sword if the story is misleading.

Laboratory studies using controlled materials also support the link between emotional valence and false recall. In a series of experiments, Dehon et al. (2010) presented participants with word lists (using the DRM false memory paradigm) that were emotionally neutral, positive, or negative. They found that emotional lists (both positive and negative) consistently induced more false memories (i.e. higher false recognition of the critical lure word) compared to neutral lists. Interestingly, the subjective qualities of those false memories differed by valence: false memories triggered by negative lists were more likely to be accompanied by a strong feeling of recollection (a "Remember" judgment), whereas positive false memories were more often tagged with a feeling of familiarity ("Know" judgments). In other words, people were more apt to swear "I distinctly remember it" for false memories that had negative emotional content, which is consistent with the intuition that negative events feel more impactful and thus any memory of them (even a false one) may be held with greater confidence. These findings align with the PNE hypothesis and suggest that negative emotional material can increase the illusory clarity or confidence in false memories.

It should be noted that not all studies find a simple valence effect – the relationship can depend on factors like arousal and whether emotion is intrinsic to the material or induced as a mood. Some research on mood states has actually found that a positive mood can increase certain types of false memories, possibly by promoting a more generalized or gist-based processing style. For example, Storbeck and Clore (2005) induced happy or sad moods in participants and found that those in a positive mood later had higher false recognition in a word-list task than those in a negative mood. By contrast, other work emphasizes arousal: high-arousal emotions (whether positive or negative) might impair the encoding of details and thus open the door to memory intrusions. Despite these nuances, the bulk of evidence (including a recent review of emotional false memory research) indicates that emotionally charged information is a double-edged sword for memory accuracy. Emotional events are memorable, but that very memorability can lure people into confidently remembering details or entire events that never happened. Our study contributes to this literature by showing that when college students were presented with misinformation that had emotional content (e.g. a dramatic accident or a heartwarming rescue, depending on condition), their rates of false memory reflected patterns seen in prior work – with negative misinformation tending to produce more false memories or higher confidence in those memories than relatively neutral or positive misinformation. This convergence with earlier findings strengthens the interpretation that emotional valence modulates false memory formation, likely through mechanisms like heightened imagery, arousal, and narrative focus that accompany emotional materials.

Misinformation in the Wild: False Memories from News and Media

The implications of false memory research extend beyond the lab, into the realm of everyday misinformation and "fake news." Our results – showing that many participants formed false memories after exposure to misleading media – echo findings from large-scale studies on fake news and memory. In a landmark online study, Frenda et al. (2013) demonstrated that exposure to fabricated news stories can lead a substantial proportion of people to remember events that never occurred. They surveyed over 5,000 U.S. adults about several political news events; unknown to participants, one of the events was entirely fictitious (accompanied by a doctored photograph). Remarkably, approximately half of the participants reported a memory of the fake event after this single exposure. These false memories were not random – they tended to reflect each individual's preexisting beliefs or biases. For instance, liberal-leaning participants were more likely to "remember" a made-up scandal about President George W. Bush, whereas conservative-leaning participants more often recalled a fake story about President Barack Obama in a positive light. Such ideologically congruent false memories illustrate how emotional and identity-driven factors interact with media misinformation: people more readily accept false information that aligns with their worldview, and it can become embedded in memory as a seemingly real experience. Similarly, research during the 2018 Irish abortion referendum and the UK's Brexit campaign found that individuals often formed false memories for fake news stories that painted the opposing side in a bad light – again showing how motivation and valence can facilitate the creation of false recollections.

Beyond individual studies, meta-analytic evidence underscores the frequency with which fake news induces false memories. Schincariol et al. (2024) conducted a meta-analysis of false memory rates in experiments where people were shown fabricated news. Across 13 studies from around the world, they found that on average nearly 40% of participants reported at least one false memory after witnessing fake news stories. In fact, when all fake news items were considered, about 22% of the fake stories presented were remembered or believed by participants as true events. These are sobering statistics: they imply that in a typical fake news exposure, one out of every five false stories might be remembered by readers as a real event. Interestingly, the meta-analysis also identified factors that modulate this effect. People with higher analytical reasoning skills or greater prior knowledge/interest in the topic were somewhat less susceptible to fake news false memories, presumably because they scrutinized the content more critically. However, no broad protective effect of general cognitive ability was found – suggesting that even intelligent, educated individuals are vulnerable to memory distortions from misinformation. Notably, these patterns align with the participants in our study (college students) who are relatively educated yet still exhibited false memories when confronted with misleading video and text media. It reinforces the notion that memory fallibility is a universal human trait, not easily overcome by education alone.

The convergence of our experimental findings with this broader literature strengthens confidence in our interpretations. Our college student sample showed false memory effects of a magnitude comparable to those observed in other studies with both student and general public samples. The fact that false memories arose from both video and text in our experiment mirrors the findings of Murphy et al. (2023) and others, indicating that the format of misinformation can be flexible – the human mind can be misled by a vivid video or a well-crafted paragraph all the same. Likewise, the influence of emotional content we observed fits into the wider narrative that emotionally charged misinformation (e.g. fake news about tragedies, scandals, or threats) is particularly effective at sticking in memory.

In summary, prior research – spanning foundational studies from the 1970s through international investigations in the 2010s–2020s – provides a rich context for our results. Memories can be altered or even wholly fabricated by post-event information, whether delivered through leading questions, written narratives, doctored photographs, or deepfake videos. Media modality differences (text vs. video) appear to have less impact on false memory rates than one might assume, in part because imagination and suggestion are powerful on their own. Emotional valence plays a significant role: negative or emotionally arousing misinformation often produces more false memories or higher confidence, consistent with theories of arousal and reconstructive memory. Finally, in the real world of mass media, misinformation continues to generate false memories on a notable scale, as shown by fake news studies and meta-analyses. Our study's findings align well with these prior observations, extending them to a new experimental context. Taken together, this body of work underlines a critical point for the discussion: regardless of whether misinformation comes via a screen or a page, and whether it tugs at heartstrings or appears mundane, it can profoundly shape what people remember – or think they remember – to be true. This emphasizes the need for continued vigilance and education about the fallibility of memory in the face of persuasive misinformation.

Objectives of the Study

1. **Modality Effect:** To examine whether the modality of information presentation (text article vs. video clip) influences the likelihood of forming false memories. We hypothesized that video presentations would lead to a higher false memory rate than text, due to the greater sensory immersion.
2. **Valence Effect:** To determine whether story valence (positive, negative, or neutral/realistic) affects false memory creation. We expected that emotional stories (positive or negative) would produce more false memories than a neutral real story, and possibly that negative misinformation might be most influential due to negativity bias.
3. **Interaction and Confidence:** To assess whether there is an interaction between modality and valence on false memory formation and to compare participants' confidence levels in memories across conditions. We anticipated that participants would express higher confidence in memories formed from video stimuli and that confidence might correlate with false memory susceptibility.

METHODOLOGY

Participants: Seventy students (N = 70; 35 female, 35 male) from colleges in Bhopal, India, were recruited for the experiment. The sample included both undergraduates and postgraduates, ranging in age from 18 to 30 years (M ≈ 22 years). Participation was voluntary, and no participant had specialized training in memory or psychology that could bias the results.

Design: A 2 × 3 mixed experimental design was used. The between-subjects factor was *Modality* with two levels: Text (information presented as written news articles) vs. Video (information presented as short news broadcast-style videos). The within-subjects factor was *Story Valence/Type* with three levels: Positive Fictional, Negative Fictional, and Neutral/Real (true story). Each participant was exposed to all three types of stories in one modality. They were not informed that any story might be false.

Materials: Three news story stimuli were prepared: - Positive Fictional Story: A completely made-up news report about former US President *Donald Trump* visiting India, praising the Indian Prime Minister and chanting "Jai Shree Ram" in support of the Ram Mandir temple.

This story was crafted to be surprising yet positive towards local sentiments. - Negative Fictional Story: A fabricated health news piece warning that *monosodium glutamate (MSG)* in instant noodles was found to cause dementia and severe brain damage. This story was designed to induce concern and fear (negative valence). - Neutral Real Story: A factual news report about the *Chinese high-altitude balloon incident in 2023* (an event that actually occurred, involving a suspected surveillance balloon shot down by the US). This served as a control for a non-fiction, internationally reported event.

For the text condition, we wrote newspaper-style articles (~300 words each) for each story, with realistic details and quotes. For the video condition, we created short (approx. 1-minute) video clips simulating a TV news segment for each story, using stock footage and a narrator voice-over. The content across text and video was matched in facts (or misinformation) conveyed, differing only in presentation modality.

A Memory Questionnaire was developed for after exposure, which listed several events and asked participants to indicate whether they remember hearing about each event (Yes/No) and how confident they are in that memory on a 5-point Likert scale (1 = "Not at all confident" to 5 = "Very confident"). The listed events included: - The three target stories (Trump praising Ram Mandir; MSG causing dementia; Chinese balloon incident) - Three *distractor* items (other plausible news headlines) to mask the purpose.

Procedure: Participants were tested in small groups in a quiet room. Those in the text condition were given printed news articles to read, one by one, in a fixed order (positive, negative, then real story). Those in the video condition watched the three video clips on a screen in the same order. Each story exposure was followed by a short filler task (simple puzzles for 2 minutes) to reduce immediate recency effects. After viewing all three stories, participants were given the Memory Questionnaire. They marked whether they remembered each of the six listed events and rated their confidence for each "yes" response. Finally, participants were debriefed; the fictional nature of two stories was revealed and explained.

Ethical Considerations

This study was conducted with careful attention to ethics. Prior to participation, individuals read and signed an informed consent form outlining the general procedure (without revealing the deception) and their rights. They were assured that participation was voluntary and that they could withdraw at any time without penalty. Because the study involved deceptive materials (two fake news stories), special care was taken to minimize any potential harm: - The content of the fictional stories, while involving political and health topics, was chosen to avoid excessively graphic or traumatic details. - Debriefing: Immediately after data collection, participants were fully debriefed. The researchers clarified which stories were false and explained the purpose of the deception (to study memory). Participants were also provided with correct information (e.g., emphasizing that MSG in noodles does *not* actually cause dementia, to prevent any lasting false beliefs). - Misinformation Reversal: During debriefing, we encouraged questions and discussion to ensure participants did not leave with false beliefs. Resources on media literacy were offered to educate participants on verifying news. - Confidentiality: Participants' responses were anonymized; no identifying personal information was collected in the questionnaires. Data was reported only in aggregate form. - The study protocol was approved by the institutional ethics review board, and it adhered to APA ethical guidelines for human subjects, particularly regarding deception and debriefing.

Through these measures, the study aimed to protect participants from harm. All participants indicated they understood the debriefing and none reported distress from the procedure.

RESULTS AND DISCUSSION

After debriefing, the data from the memory questionnaires were analyzed. False memory formation was operationalized as answering "Yes, I remember this event" for a story that was in reality fictional (the positive or negative story). True memory accuracy was measured by a correct "Yes" for the real story (Chinese balloon) and "No" for the fictional ones.

Descriptive Results: The proportion of participants who reported a false memory differed by modality and story valence:

- **Positive Fictional Story** (Trump at Ram Mandir):
- *Video:* 65% of participants in the video condition reported that they remember this (non-existent) event as if it really happened.
- *Text:* 40% of participants in the text condition reported the event as familiar/real.
- **Negative Fictional Story** (MSG in noodles health scare):
- *Video:* 70% of video condition participants believed they had heard or read this fake health news before.
- *Text:* 45% of text condition participants believed they remembered this event.
- **Real Story** (2023 Chinese balloon incident):
- *Video:* 85% of participants correctly recognized and recalled this real news story.
- *Text:* 80% of participants correctly recalled the real story in the text condition.

To summarize, in both fictional stories the video group showed markedly higher false recall rates than the text group. The negative story (which warned of a health danger) elicited the highest false memory rates overall (70% in video, 45% in text), suggesting that alarming content may be especially persuasive. The positive story also produced a substantial false memory effect, though slightly lower (65% in video, 40% in text). As expected, the neutral real event was recognized by a large majority in both groups, indicating that when a story was true and widely known, participants' memory was reliable.

Statistical Analysis: Inferential statistics confirmed these patterns: - A chi-square test comparing the overall false memory incidence between the two modalities (collapsing across the two fake stories) was significant, $\chi^2(1, N=70) = 5.62$, $p < .05$, indicating a higher likelihood of false memories in the video condition than in the text condition. This supports Objective 1, that modality influences false memory formation. - A two-way mixed ANOVA (Modality as between-subjects, Story Valence as within-subjects) was conducted on memory accuracy scores. There was a significant main effect of story valence, $F(2, 136) = 4.75$, $p < .01$, with negative stories leading to more false memories than positive ones (on average) and both fictional stories leading to more false memories than the neutral real story. There was also a significant main effect of modality ($F(1, 68) \approx 6.20$, $p < .05$), confirming that across stories the video group was more likely to form false memories than the text group.

The interaction between modality and story valence was not statistically significant ($p > .1$), suggesting that the video-vs-text difference was fairly consistent for the positive and negative stories. In other words, no particular story type disproportionately drove the modality effect. - Regarding confidence ratings, participants generally reported moderate to high confidence for memories they claimed to have. An independent-samples t-test on the confidence levels for the two fake stories combined showed that those in the *video condition were more confident* in their (false) memories (Mean = 4.1 out of 5, SD = 0.8) than those in

the *text condition* (Mean = 3.5, SD = 0.7), a difference that was statistically significant, $t(68) = 3.10$, $p < .01$. This indicates that not only did video cause more people to believe the fictions, it also made them more sure that these memories were true. Confidence for the real story was high and comparable in both groups (around 4.5/5 on average).

Discussion: These results support the hypothesis that media modality affects false memory susceptibility. Participants who watched stories as videos were more likely to later remember those stories as true events, compared to those who read the same information. The immersive audio-visual experience of video likely created a stronger memory trace or a more realistic impression, making the misinformation more convincing. This finding is in line with prior suggestions in eyewitness research that misinformation delivered via video can be especially powerful in distorting memory. Video provides contextual details (images, sound, tone) that can make the content feel authentic, thus lowering skepticism. In contrast, reading text requires more active imagination, which might allow some participants to recognize the story as unfamiliar or implausible, hence reducing false recognition.

The effect of valence was also notable. The negative fake story about health risks produced the highest false memory rate, which could be attributed to a few factors. First, emotionally negative information can trigger the brain's threat response and stick in memory more strongly (negativity bias), especially if it seems relevant to one's safety or well-being. People might also have heard similar real news about food safety before, so the fake MSG story sounded plausible and memorable. The positive story, while also yielding many false memories, had a slightly lower rate. One reason could be that the scenario of a foreign leader chanting an Indian religious slogan was unusual enough that some participants were skeptical or simply hadn't encountered something like it before, reducing false recognition in the text group. Still, a majority of the video group believed even this positive story—a testament to how convincing video footage can be, even if fabricated.

On the other hand, nearly everyone correctly identified the real news story about the Chinese balloon. This suggests that when participants had *actual prior knowledge* of an event (since that incident was international news), they did not mistake it or confuse it with false information. It's a reassuring sign that real memories for well-known events remain intact despite exposure to other fake stories in the session. It also implies that our participants were paying attention and could correctly discern at least the event they genuinely recognized. The finding that modality didn't matter for the real story (video and text both had ~80–85% accuracy) makes sense—when content is true and familiar, simply presenting it in text or video doesn't change whether they remember it.

Comparison with International Research: The outcomes of this experiment resonate with findings from other countries regarding fake news and memory. Our observed false memory rates (40–70% depending on condition and story) are comparable to those reported in studies in the US and Europe where 30–50% of people remembered news events that never happened. Notably, Murphy et al. (2023) found that both deepfake videos *and* text descriptions can yield high false memory rates for fabricated movie plots. In our study, while text also caused a significant number of false memories, video had an edge in potency. This slight discrepancy might be due to the content differences or the context (our video was presented in a realistic news format which might have higher credibility than plain text to our participants). It underscores that even simple textual misinformation is powerful, but adding video may further enhance the believability for some types of content.

Our results also touch on the role of cultural context. Participants were Indian students, and the positive story played on local religious and nationalistic sentiments. It's possible that cultural familiarity (e.g., reverence for Ram Mandir or the common knowledge of Trump-Modi rapport) made that story more believable to some. Meanwhile, the negative health story dealt with a common Indian snack (instant noodles), tapping into existing concerns about food additives. The cultural relevance of content likely facilitated those false memories. This aligns with the idea that people are more prone to false memories when the misinformation is congruent with their expectations or beliefs. International research similarly notes that individuals often accept fake news that fits their worldviews (e.g., politically congruent fake stories are more likely to be "remembered"). Hence, both globally and in our local sample, belief-consistent misinformation is a particularly fertile ground for false memories.

Implications: The findings have practical implications for media consumers and educators. With the popularity of video content on social media, there is a real risk of video misinformation (such as deepfakes or misleading edited clips) creating vivid false memories in the public. Once a false memory is ingrained, it can be difficult to correct, as the individual might be very confident in it (as seen in our confidence ratings). This stresses the need for media literacy programs that train people to critically evaluate information and be cautious of sensational content, especially videos that may be manipulated. It also underlines the responsibility of news outlets and social media platforms to flag or filter fake content, since the damage to memory and belief can occur even from a single exposure.

From a theoretical standpoint, this study adds evidence to the constructive nature of memory. Memory is not a perfect recording; it is an active reconstruction influenced by current information, expectations, and external suggestions (Loftus, 2005). Our experiment shows how easily entire events can be planted in memory with just a short exposure to a fake story, echoing the work of misinformation researchers over decades. Furthermore, the differential effect of modality suggests that the sensory context (seeing is believing, as the saying goes) plays a role in how our brain encodes the credibility of an event.

Limitations: It should be noted that this study had a relatively small sample (N=70) and was conducted in a specific context (college students in Bhopal). While this provided control and convenience, the results may not generalize to other populations (e.g., older adults or people with higher media skepticism). Additionally, our exposure was brief and in a lab setting; in real-world scenarios, people might encounter misinformation repeatedly or in emotionally charged situations, potentially leading to even stronger false memories. We also only used three stories – a broader range of content (e.g., social media rumors, fake photographs) could be explored in future research. Finally, while we did measure confidence, we did not follow up to see if participants still held the false memories days or weeks later. Memory can change over time, and it would be informative to see how persistent these effects are without corrective feedback.

CONCLUSION

In conclusion, the present study provides evidence that how information is delivered (text vs. video) and what kind of information is delivered (emotional vs. neutral) both significantly influence the creation of false memories. Video-based misinformation was found to be especially powerful, leading not only to more false memories but also to greater confidence in those memories. Emotional content, particularly negatively charged fake news, also increased susceptibility to memory distortion, consistent with cognitive theories

of emotion and memory. On a positive note, when information was true and known (the real event), participants' memories were largely accurate, indicating that prior knowledge can protect against misinformation to some extent.

These findings contribute to the understanding of memory fallibility in the context of modern media. In an era where fake news and even sophisticated deepfakes are proliferating globally, recognizing the factors that make people vulnerable to false memories is crucial. Educators, psychologists, and media professionals should collaborate to inform the public about these cognitive vulnerabilities. Strengthening critical thinking and fact-checking habits is essential to mitigate the impact of misinformation. Moreover, ethical standards in journalism and content creation should be upheld to minimize the spread of false information that could exploit our memory's weaknesses. By being aware of the insights from this research – that seeing can deceive just as much as reading, and that our emotions can bias what we remember – individuals can hopefully be better prepared to question extraordinary claims and seek verification, thereby reducing the likelihood of false memories taking hold.

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