

You are expected to include this acknowledgement in a separate page at the beginning

of your submission.

Basic Acknowledgement format of AI tool use

I acknowledge the use of Chatgpt[<https://chatgpt.com/>] on [20/8/2026] to assist in research and format. I used

the prompt(s):

1. Help me proofread my essay for clarity, grammar and referencing style
2. Please suggest relevant areas of research and keywords to help me locate academic sources related to the Working Memory Model and cognitive performance.

I confirm that I have not presented any AI generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before, and after the use of

AI tools which I may be asked to provide in evidence.

Introduction

Eyewitness memory points to an individual's capability other than recall and report information about an incident or event that the person have witnessed, mainly providing crucial evidence and proof in a criminal investigation and legal endeavour. However, psychological research suggests that eyewitness memory is not an entirely accurate recording or recall of past events as the cognitive process is constructive and it can be dictated by internal and external factors. Meaning, despite witnesses providing honest accounts, their memories can be influenced and altered by the way on how information is being processed, stored, and recalled. Comprehending the cognitive factors that can influence eyewitness memory is important for evaluating the dependability of the testimony of an eyewitness.

The said cognitive factors may affect attention, emotional arousal, post-event information and identification procedures. This essay will focus primarily on three factors that denotes different stages of the memory process: emotional stress during the witnessing of an event, eventual post-event misinformation, and procedures used during eyewitness identification. The three factors are chosen because they display how eyewitness memory can be dictated during encoding, reconstruction and retrieval.

Overall, this essay argues that eyewitness memory should not be immediately considered to be unreliable but instead the reliability lies on the interaction between cognitive processes, situational factors, and the conditions under which memories are retrieved.

Emotional Stress and Eyewitness Memory

Emotional stress is one cognitive factor that may influence eyewitness memory during the witnessing of an event. Criminal events usually occur in a high arousing nature, meaning witnesses may feel fear, anxiety, or threatened while attempting to encode information. Nonetheless, the relationship between stress and memory accuracy is deeper than that. Instead of assuming that stress always cause a testimony to become incorrect or inaccurate, cognitive research posits that emotional arousal can change attentional processes, influencing which chunk of an event are prioritised and later retrieved (Christianson, 1992).

One clarification for the effect of stress on eyewitness memory is provided by attentional theories of arousal. Easterbrook's (1959) cue-utilisation hypothesis proposes that increasing arousal constricts attentional focus, causing individuals to focus more on central aspects of an incident while minimising awareness of peripheral information. This process may be adjustable during threatening times because attention is directed towards information that is needed for survival. However, within the lens of the eyewitness, this constriction of attention may become problematic because details that pops out peripherally during an event like the offender's facial features or surrounding geographical information, may become important in an investigation.

The link between stress and selective attention is supported by research studying emotionally significant events. Christianson (1992) reviewed evidence suggesting that emotional arousal can amplify memory for details that took place centrally while reducing memory for information with perceived less importance. This challenges the assumption that stress merely hinders memory, instead positing that stress may produce a curated pattern of memory accuracy. For instance, a witness experiencing a violent and stressing robbery may remember the weapon involved or the actions of the offender with great clarity, while having

challenges recalling descriptive details such as clothing, time, or appearance. Therefore, stress may dictate on what information is eventually encoded by the eyewitness.

Further evidence comes from research on threatening stimuli and attentional capture. Loftus et al. 1987) demonstrated the weapon focus effect whereby the presence of a weapon hindered participants' ability to identify a person associated with the threat. This finding further consolidates the idea that attention is highlighted on emotionally significant objects while minimising processing of every other information. When applied to an eyewitness testimony, a witness may accurately remember the presence of a weapon but provide a less accurate identification of the perpetrator.

However, influence of stress on memory should be perceived as immediately unreliable. Christianson (1992) argued that emotionally arousing events can at times produce strong and thorough memories, especially for information that is central to the event. This suggests that stress may improve memory for certain aspects of an event rather than producing overall memory failure.

Post-event Misinformation and Memory Reconstruction

In contrast to stress, post-event misinformation affects eyewitness memory after the initial experience has occurred. The misinformation effect points to the phenomenon where an individual's memory of an event becomes distorted after being surrounded by inaccurate and misleading information about that event (Loftus, 2005). This factor is pertinent to eyewitness testimony because witnesses are hardly separated from external influences following an event of crime. Instead, they may come across information in the form of police questioning, media coverage, or when they converse with other witnesses. Therefore, eyewitness can not only be influenced by original experience but also information that were encountered afterwards (Loftus, 2005; Oeberst & Blank, 2012).

The theoretical foundation for understanding misinformation effects comes from the concept of reconstructive memory. Bartlett (1932) suggested that remembering is an active reconstruction dictated by existing knowledge, schemas, and expectations. As per to this perspective, individuals reconstruct memories using available information at the time of retrieval where later information can become incorporated into their recollections. This challenges the conventional view that memories are solely representations of experiences in the past and instead posits that memory remains vulnerable to modification after an event has occurred (Bartlett, 1932; Loftus, 2005).

The common evidence for reconstructive memory originated from Loftus and Palmer's (1974) investigation of how language influences eyewitness reports. Participants watched videos of traffic accidents and were subsequently asked to estimate vehicle speed using different verbs such as "hit" and "smashed." Participants who received the more intense verb "smashed" provided higher speed estimates compared with those that received less intense verbs. More significantly, when participants were later asked whether there was any broken

glass or not, despite no broken glass in the original footage, those exposed to more intense wording were more probable to incorrectly report that they saw it (Loftus & Palmer, 1974).

The significance of Loftus and Palmer's (1974) findings extends beyond simple changes in judgement because they demonstrate that misinformation can influence the content of remembered experiences. Loftus (2005) reviewed three decades worth of misinformation research and argued that memories can be influenced through suggestion, especially when misleading information is plausible and fits in well with existing expectations. This research has important implications for eyewitness interviews because questions that have the essence of assumptions or suggestive wordings may indirectly introduce information that becomes incorporated into a witness's memory. Hence, inaccurate testimony may not reflect dishonesty but rather normal reconstructive processes occurring during remembering.

Nonetheless, the mechanisms regarding misinformation effects remain arguable. One explanation suggests that misleading information can change or replace the original memory, resulting in a distorted recollection. This interpretation is congruent with the idea that memory is elastic and that new information can bind with the original event (Loftus, 2005). However, different explanations argue that misinformation may not erase the original memory but may instead create challenges in determining the source of information during retrieval. Wright and Loftus (1998) underlined that misinformation effects may play into several memory processes which are interference with the original and misleading information. Hence, eyewitness error may take place because there is a confusion between individuals whether a specific detail is for a witnessed event or from information afterwards.

Another way to explain misinformation is source monitoring. Source monitoring is the cognitive process where individuals decide the origin of remembered information. When a witness obtains misleading information after an incident, they may associate it with their

original experience instead of the later source. Zaragoza et al. (2007) argued that misinformation effects cannot always be elaborated through simple memory replacement, but instead decision-making processes and memory retrieval strategies also play a part into the elaboration. This perspective provides a more layered explanation because it suggests that eyewitness memory errors may come from the difficulties of trying to remember the origin of any information.

Social interaction with other witnesses can also cause post-event misinformation. Gabbert et al. (2003) studied memory conformity, suggesting that individuals can produce inaccurate information post-discussion with another person. In their study, participants who witnessed the same event but from different angles later exchanged information, resulting in few participants giving reports about details that they had not personally witnessed. This finding contains robust real-world relevance because eyewitnesses often get involved in discussion post crime events.

Despite solid evidence backing misinformation effects, research also suggests that predisposition to misinformation effect is not equal across all individuals. Recent work has examined whether cognitive abilities play a part in vulnerability towards memory distortion. Brassil et al. (2024) found that differences in cognitive abilities such as memory performance, reasoning ability, and source-monitoring skills may decide one's susceptibility to misinformation. This disputes the assumption that eyewitnesses are equally vulnerable to suggestion and posits that memory distortion partly depends on one's cognitive characteristics.

Notably, effects of misinformation are not permanent or completely impossible to reduce. Oeberst and Blank (2012) studied whether existing misinformation could be reversed and discovered that indicative influences could be minimised through procedures that encouraged participants to distinguish between original information about an event and

misleading information. Their findings propose that memory distortion may be a result of retrieval and monitoring difficulties instead of permanent damage to the original memory. Likewise, Blank and Launay (2014) conducted a meta-analysis studying post-warning procedures and discovered that warnings about misinformation can decrease memory distortion, although effectiveness relies on factors like timing and type of warning given.

Nonetheless, limitation of misinformation research lies on the difference between controlled demonstrations and real-world eyewitness experiences. Many studies utilise controlled conditions, such as filmed accidents, where participants are aware that they are taking part in a memory experiment. Although these methods come with solid experimental control, they may not include emotional significance and personal repercussions linked to genuine crimes. In addition, not all memories are prone to misinformation where highly distinctive or emotionally significant details may be less susceptible to distortion.

Eyewitness Identification Procedures and Memory Retrieval

The third and final cognitive factor that can dictate eyewitness memory is the procedures used when witnesses are asked to identify a criminal following an event. Although initial memory is formed at the moment of the crime, accuracy can be affected later when witnesses try to retrieve and recall their memories. Eyewitness identification is hence not a straightforward process of retrieving stored representation of an offender but instead it entails a complex decision-making process where witnesses evaluate whether an individual presented during a lineup matches their memory of the perpetrator (Wells, 1978).

A central theoretical framework within eyewitness identification research is Wells' (1978) differentiation between estimator variables and system variables. Estimator variables refer to factors that dictate memory but cannot be managed post crime which includes lighting conditions, viewing duration, distance from the offender, and emotional stress. On the other hand, system variables entail factors controlled by investigators, such as lineup instructions, composition of lineups, and methods of presentation (Wells, 1978). This distinction has great practical significance because though investigators aren't able to change the initial witnessing conditions, they can alter identification procedures to minimise avoidable mistake. Wells et al. (1998) continued to argue that eyewitness identification research should focus on amplifying the efficacy of system variables because these are the factors that work directly under the control of the criminal justice system.

One important aspect of research is about whether should the suspects be presented in a sequential or simultaneous manner. In lineups that are simultaneous, witnesses view all suspects together at the same time and continue to select the person who appears the closest to the one in their memory. However, this procedure can cause relative judgement process, where witnesses compare suspects against each other instead of against their memory of the actual

perpetrator (Wells, 1984). This brings about the possibility that a witness may choose the suspect who appears to be the closest match among existing options even when the actual criminal is absent. On the other hand, sequential lineups attempt to address this problem by showing one suspect at a time, encouraging witnesses to produce an absolute judgement based on whether each suspect matches with the one in their memory.

Strengthening this elaboration, Lindsay and Wells (1985) discovered that sequential lineups decreased wrong identifications in contrast to simultaneous procedures. The two authors argued that sequential procedures minimise the pressure to make relative comparisons and therefore improve discrimination between guilty and innocent individuals. Likewise, Steblay et al. (2001) conducted a meta-analysis studying sequential and simultaneous lineup presentations and found that sequential procedures result in lesser wrong identifications.

Errors cannot be totally limited despite improvements and availability of better options in identification procedures. Seale-Carlisle et al. (2019) underlined that identification accuracy relies on multiple factors, including procedural conditions and individual differences. In addition, laboratory studies or controlled studies may not be an accurate representation of real crime situations where witnesses go through stress and repeated exposure to information. Hence, eyewitness identification should be perceived as immediately unreliable but instead its accuracy depends on the conditions under which memories are being retrieved and evaluated. Applying evidence-oriented procedure such as designed lineups, can help minimise false identifications while maintaining the value of eyewitness evidence within the criminal justice system.

Conclusion

Eyewitness memory is a valuable and reasonable source of evidence within the criminal justice system. Nonetheless, cognitive research shows that it is a reconstructive process that can be influenced by several factors. This essay has evaluated three cognitive influences on the memory of witnesses which are emotional stress during witnessing, post-event misinformation, and identification procedures. Altogether, these factors show that errors in memory can take place at different stages of processing. Firstly, stress can influence encoding by manipulating attentional focus where witnesses are most likely to prioritise central information while pushing peripheral details aside (Christianson, 1992). Following an incident, misinformation can cause memory reconstruction to be flawed through processes such as suggestion, social influence, and source-monitoring drawbacks (Loftus, 2005; Gabbert et al., 2023). Finally, identification procedures can influence can affect retrieval decisions, with lineup structure and instructions influencing the probability of the identifications becoming accurate or false (Lindsay & Wells, 1985; Wixted & Wells, 2017).

Significantly, these findings do not imply that testimonies coming from eyewitnesses is immediately unreliable. But instead, they show that eyewitness accuracy relies on the relationship between cognitive processes, situational factors and the procedures used to gain testimony. Psychological research has pointed out practical strategies to amplify the reliability of eyewitness evidence such as reducing leading questions, preventing co-witness influence, using unbiased lineup instructions, and implementing evidence-based identification procedures. These recommendations contain significant ethical implications because eyewitness evidence that is less accurate can play a part in wrongful convictions and significant harm to individuals in the justice system. Hence, eyewitness memory should be evaluated while considering the conditions under where memories are formed, maintained, and retrieved. Rather than completely putting down eyewitness testimony, cognitive studies enable legal personnels to

better comprehend its limitations and strengths, helping to come out with procedures that can produce the greatest amount of accuracy possible.

References

1. Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge University Press.
2. Blank, H., & Launay, C. (2014). How to protect eyewitness memory against the misinformation effect: A meta-analysis of post-warning studies. *Journal of Applied Research in Memory and Cognition*, 3(2), 77–88. <https://doi.org/10.1016/j.jarmac.2014.03.005>
3. Brewer, N., & Wells, G. L. (2006). The confidence-accuracy relationship in eyewitness identification: Effects of lineup instructions, foil similarity, and target-absent base rates. *Journal of Experimental Psychology: Applied*, 12(1), 11–30. <https://doi.org/10.1037/1076-898X.12.1.11>
4. Brassil, M., O'Mahony, C., & Greene, C. M. (2024). Do cognitive abilities reduce eyewitness susceptibility to the misinformation effect? A systematic review. *Psychonomic Bulletin & Review*, 31, 2410–2436.
5. Christianson, S. Å. (1992). Emotional stress and eyewitness memory: A critical review. *Psychological Bulletin*, 112(2), 284–309. <https://doi.org/10.1037/0033-2909.112.2.284>
6. Christianson, S. Å., & Loftus, E. F. (1987). Memory for traumatic events. *Applied Cognitive Psychology*, 1(4), 225–239. <https://doi.org/10.1002/acp.2350010402>
7. Clark, S. E. (2012). Costs and benefits of eyewitness identification reform: Psychological science and public policy. *Perspectives on Psychological Science*, 7(3), 238–259. <https://doi.org/10.1177/1745691612443367>
8. Easterbrook, J. A. (1959). The effect of emotion on cue utilization and the organization of behavior. *Psychological Review*, 66(3), 183–201. <https://doi.org/10.1037/h0047707>

9. Gabbert, F., Memon, A., & Allan, K. (2003). Memory conformity: Can eyewitnesses influence each other's memories for an event? *Applied Cognitive Psychology*, 17(5), 533–543. <https://doi.org/10.1002/acp.885>
10. Lindsay, R. C. L., & Wells, G. L. (1985). Improving eyewitness identifications from lineups: Simultaneous versus sequential lineup presentation. *Journal of Applied Psychology*, 70(3), 556–564. <https://doi.org/10.1037/0021-9010.70.3.556>
11. Loftus, E. F. (2005). Planting misinformation in the human mind: A 30-year investigation of the malleability of memory. *Learning & Memory*, 12(4), 361–366. <https://doi.org/10.1101/lm.94705>
12. Loftus, E. F., & Palmer, J. C. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior*, 13(5), 585–589. [https://doi.org/10.1016/S0022-5371\(74\)80011-3](https://doi.org/10.1016/S0022-5371(74)80011-3)
13. 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. <https://doi.org/10.1037/0278-7393.4.1.19>
14. Loftus, E. F., Loftus, G. R., & Messo, J. (1987). Some facts about “weapon focus.” *Law and Human Behavior*, 11, 55–62. <https://doi.org/10.1007/BF01044839>
15. Malpass, R. S., & Devine, P. G. (1981). Eyewitness identification: Lineup instructions and the absence of the offender. *Journal of Applied Psychology*, 66(4), 482–489. <https://doi.org/10.1037/0021-9010.66.4.482>
16. Oeberst, A., & Blank, H. (2012). Undoing suggestive influence on memory: The reversibility of the eyewitness misinformation effect. *Cognition*, 125(2), 141–159. <https://doi.org/10.1016/j.cognition.2012.07.009>

17. Seale-Carlisle, T. M., Wetmore, S. A., Flowe, H. D., Wells, G. L., Erickson, W. B., & Mickes, L. (2019). Confidence and accuracy in eyewitness identification: The cross-race effect and other factors. *Psychological Science in the Public Interest*, 20(1), 1–62.
18. Steblay, N. M., Dysart, J. E., Fulero, S. M., & Lindsay, R. C. L. (2001). Eyewitness accuracy rates in sequential and simultaneous lineup presentations: A meta-analytic comparison. *Law and Human Behavior*, 25, 459–473.
<https://doi.org/10.1023/A:1012884715007>
19. Wells, G. L. (1978). Applied eyewitness-testimony research: System variables and estimator variables. *Journal of Personality and Social Psychology*, 36(12), 1546–1557.
<https://doi.org/10.1037/0022-3514.36.12.1546>
20. Wells, G. L. (1984). The psychology of lineup identifications. *Journal of Applied Social Psychology*, 14(2), 89–103.
21. Wells, G. L., Small, M., Penrod, S., Malpass, R. S., Fulero, S. M., & Brimacombe, C. A. E. (1998). Eyewitness identification procedures: Recommendations for lineups and photospreads. *Law and Human Behavior*, 22, 603–647.
22. Wells, G. L., Memon, A., & Penrod, S. D. (2006). Eyewitness evidence: Improving its probative value. *Psychological Science in the Public Interest*, 7(2), 45–75.
<https://doi.org/10.1111/j.1529-1006.2006.00027.x>
23. Wixted, J. T., & Wells, G. L. (2017). The relationship between eyewitness confidence and identification accuracy: A new synthesis. *Psychological Science in the Public Interest*, 18(1), 10–65. <https://doi.org/10.1177/1529100616686966>
24. Wright, D. B., & Loftus, E. F. (1998). Misinformation effects in eyewitness memory: The role of memory processes. *Psychological Science*, 9(3), 151–155.

25. Zaragoza, M. S., Belli, R. F., & Payment, K. E. (2007). Misinformation effects and the suggestibility of eyewitness memory. In M. Garry & H. Hayne (Eds.), *Do justice and let the sky fall: The psychology of false memories* (pp. 35–63). Psychology Press.