

AI Acknowledgement Statement

I confirm that Generative AI tools were used in the preparation of this assignment strictly within the permitted categories:

Research: Used to assist in research

Structure: Used to assist in structuring the submission, including developing a draft argument outline and identifying sections and headings.

Proofreading: Used to check my own original writing for grammatical and syntactical accuracy and to obtain rephrasing suggestions.

I confirm that Generative AI was **not** used to generate text for the final submission. I confirm that all submitted written text represents my own original work and I maintain copies of my drafts, prompts, notes and resources used during the creation process, which I can provide upon request.

Cognitive Factors Influencing Eyewitness Memory: A Critical Evaluation of Stress, Post-Event Misinformation and Identification Procedures

Introduction

The eyewitness is a key source of information in crime investigations and trials. Witnesses might need to testify about what they saw, background information about a perpetrator or an identification of a suspect. But psychological studies have shown that eyewitness memory is not a flawless recording of the event. Instead, memory is reconstructive and might be affected by cognitive and environmental factors. Eyewitness memory is someone's recollection of an event that they personally experienced and eyewitness identification is the act of identifying a person who is thought to be responsible for an event. Eyewitnesses might be trustworthy and feel sure of their recollections but they can still have errors.

The importance of understanding the factors that affect the memory of eyewitnesses is that false evidence can have serious consequences in a criminal justice system. These errors can lead to wrongful arrest or conviction and can mislead investigations away from the real perpetrator. This essay examines three of the cognitive factors that may affect eyewitness memory. Stress and emotional arousal, post-event misinformation and eyewitness identification procedures. These factors are the various stages of the memory process. The encoding of information in an event could be affected by stress, the reconstruction of the event may be affected by misinformation and identification processes may affect retrieval and decision-making. Empirical research and relevant psychological theories will be critically examined, including strengths and weaknesses. Finally, the practical and ethical considerations of these results will be discussed.

Stress and Emotional Arousal

The impact of stress on the event is an important factor in eyewitness memory. Threats, violence or weapons are often present during crimes. Stress impacts attention and what is stored in memory.

One explanation for this effect is given by Easterbrook (1959) cue-utilisation hypothesis. Theory suggests that the higher the arousal, the fewer the environmental cues that can be focused upon. Moderate levels of arousal could facilitate focusing on information that is relevant to the situation. However, very high arousal can lead to selective attention: peripheral information is not as likely to be processed. For the witness, this may involve paying attention to an object that is threatening rather than the face or clothing of the perpetrator.

This explanation is supported by the weapon focus effect. Körner et al. (2024) found that participants who viewed a weapon made fewer correct identification than those that viewed a non-threatening object. The researchers proposed that the weapon draws attention to itself making it harder for people to process other information. This is especially important in relation to crimes involving weapons as witnesses can focus on the source of danger rather than characteristics.

Stress does not always impair the accuracy of eyewitness memory. Körner et al. (2023) conducted a study of witnesses to a real-life shooting, and found that they had relatively good memories of the incident several months later. This study is significant because it was not a simulated laboratory situation, but a real stressful event was studied. It is an example of how eyewitnesses may have accurate memories even when they are highly emotionally aroused.

The differences in findings are important and indicate a key weakness of eyewitness research. Laboratory studies allow high experimental control and researchers can control stress and measure its effects with accuracy. However, participants observing simulated crimes might not have the same sense of threat or fear as one who is witnessing a real crime. Field studies are more ecologically valid but less controlled due to the fact that the level of stress a witness may encounter is not controllable. Thus, without knowing how memory differed in the absence of stress, it is hard to conclude if stress is responsible for the differences in memory.

The literature reviewed in this paper indicates that high stress can have a detrimental effect on eyewitness memory, specifically on narrowing attention. It is not necessarily accepted that a stressed witness is an unreliable witness. Stress effects are related to the amount of stress or the nature of the event and the direction of the attention of the person witnessing the event. Thus, investigators should be aware of and take into account the circumstances surrounding an eye-witness's observation and not simply assess the reliability of the testimony based on the emotional state of the eye-witness.

Post-Event Misinformation

Another key component that affects the recollection of an eyewitness is post-event misinformation. This happens when someone is presented with false or distorted information following an event and later assimilates some of the information into their memory. The phenomenon is important evidence of the reconstructive nature of memory.

The reconstructive approach originated with Bartlett (1932), who suggested that people's knowledge and expectations will affect their memory. People do not retrieve memories but rather reconstruct them based on the information that they have available. Thus, events may sometimes

be integrated into the original memory in the process of acquiring information following the event.

One of the most influential demonstrations of this effect comes from the study by Loftus and Palmer (1974). Participants observed videos of motor accidents and received questions during the presentation of the videos. When participants were asked to guess the speed of the cars when they "smashed" into one another, they reported higher speeds than when they were asked about the speed of the cars when they "hit" each other. Moreover, the group that were asked to report seeing broken glass was significantly more likely to report seeing broken glass, even though there was no broken glass in the original film. This has shown that question wording following an event can affect memory for that event (Wiechert et al., 2025).

The findings have important implications for eyewitness interviews. For instance, if there is a witness to the accident, the question "How fast was the red car travelling when it hit the pedestrian?" might include information about the color of the car or there was a pedestrian hit by the car in a certain way. If the witness did not encode these aspects, the question may impact his/her later report.

Other witnesses can also be a source of post-event misinformation. In the study of memory conformity, individuals' memories are affected by information received from other people (Kękuś et al., 2024) . Participants watched various presentations of an event and then conversed with another participant about the event. Several participants then shared information they had not seen or experienced but had heard from the other person. This is particularly important for investigators when interviewing eyewitnesses as they may have already conferred with each other before giving statements.

Experimentally-proven misinformation research is a big advantage. The information that can be presented after an event can be carefully manipulated and its effects on subsequent recall can be measured. Results from a number of studies are consistent with the conclusion that post-event information can affect memory.

There are some theoretical restrictions. It is wondered if some misinformation effects were evidence of a real change in the original memory. They suggested that when the participants responded to the question, sometimes the answer was due to retrieval and/or decision making processes instead of actual changes in the original memory. This criticism is important because an incorrect answer doesn't mean that the original memory has been wiped clean (Swire-Thompson et al., 2023).

There also are restrictions on ecological validity. Laboratory studies frequently present relatively simple events and controlled misinformation to their participants. In contrast, real eyewitnesses can be subject to multiple interrogations, multiple interviews, social media barrage and media exposure. However, this does not diminish in practice the significance of the research. Indeed, the complexity of information exposure in the real world could present more opportunities for contamination of memory.

These findings are relevant to practical applications. Investigators should ask open-ended questions, and refrain from asking leading questions. Where possible witnesses should be interviewed separately to avoid memory conformity. These measures do not ensure accurate memories but will decrease the chances that misleading information will be entered into eyewitness accounts.

Eyewitness Identification Procedures

The third factor which affects the memory of the witnesses is the method employed in the process of questioning witnesses to identify the suspect. The need for identification is even more paramount as a wrong identification can have grave consequences on a person's freedom and reputation.

A study suggested a number of protections to enhance eyewitness identification (Tuttle et al., 2024). One major suggestion is the application of double-blind lineups where the person conducting the lineup is not aware of who the suspect is. This will ensure that the administrator does not send unwanted information by verbal or non-verbal cues.

It is also crucial to ensure that witnesses are reminded that the perpetrator might not be in the lineup. If this is not provided witnesses may think they have to pick someone. This may lead to a relative judgment and make it possible for someone to choose the person who appears to them to be the closest to the person they remember seeing, even if the person who actually did the crime is not present.

Feedback after the identification can also impact on witness confidence. It is reported that participants who were given confirmation after they identified a suspect were more confident in their identification and were able to provide more detailed recollections of their memory. This is because confidence and accuracy do not always go hand in hand. A witness, even with poor memory, can gain greater confidence as a result of feedback.

This poses an interesting problem for courts. A very confident witness can be convincing to a judge or jury. But when that confidence is acquired after the witness has been informed he

has picked out the suspect, it may not be an accurate reflection of the confidence he had at the time of the original identification.

However, the link between confidence and accuracy isn't as straightforward as thinking that confidence doesn't matter. When the eyewitness is confident after a well-done identification, this can be informative, Wixted and Wells (2017) claimed. For this reason, when confidence is gained prior to feedback or other influences, it can be of value.

There are a number of advantages to identification research. Experimental studies enable researchers to control the lineup procedures and assess their impact. Most important of all, the results can be directly applied to law enforcement procedures. Lab ID assignments might not be accurate in the field. Participants can keep a close eye on perpetrators for a longer period than real witnesses and real crimes can have poor lighting, stress, short exposure or disguises.

However, the research is robust and indicates a strong justification for the use of safeguards during identification. There are ways to minimize potential sources of error such as double blind administration, fair lineups, clear instructions, and recording confidence immediately. These are very significant procedures because a witness may be honest and very certain, but wrong.

Integrating the Evidence

The three factors show that there is a possibility of influencing eyewitness memory at various stages. Attention at an event can be stressed, which can also impact encoding. Following event misinformation can influence reconstruction, as it can add information that wasn't in the original event. The retrieval and the decision-making process may be influenced by identification

procedures and feedback, which can impact identification and subsequent confidence (Murphy & Rissman, 2020).

These can also be interdependent. A witness for instance, might see very little detail of the robber if they were extremely stressed during the robbery. The witness can then talk to someone else about the event and get misinformation. Later, they will be shown a line-up of suspects and may be asked to pick them out, after which they will be given an affirmation. There are opportunities for memory or decision to be influenced at each stage (Jellema, 2022).

Thus, a witness's level of confidence or sincerity shouldn't be used as a criteria to measure their accuracy. It is possible for a witness to think their memory is correct and yet their memory has been distorted by cognitive processes. However, the evidence of witnesses should not be dismissed entirely, as in this case. Conditions that enable reliable memory during the event and investigation can produce accurate and valuable information from the witnesses (Wade et al., 2018).

Practical and Ethical Implications.

The research findings have important implications for the criminal justice system. Investigators should take into account the circumstances surrounding an eye witness's observation of an event, such as stress, lighting, distance, duration of observation and possible distractions are all factors to consider. These factors could offer more significant information on potential accuracy than confidence.

The purpose of police interviews is also to minimize contamination of the memory. Wherever possible use open questions and encourage witnesses to recall what they personally

remember and not information they have been given by someone else. Independent witness interviews may also further increase memory conformity (Milne et al., 2022).

Identification processes should also adhere to safeguarding based on evidence (Lindsay et al., 2025). Double blind lineups, instructions that the perpetrator might not be present and immediate recording of confidence can decrease the chances of incorrect identification.

There are also ethical issues that need to be taken into account. A wrongful eyewitness identification can lead to wrongful conviction and cause a lot of emotional, social and monetary harm to the innocent person. Meanwhile, false witness testimony might help the wrong person be identified as the culprit, which can impact victims and public safety. Therefore, the "justice system" has an ethical duty to minimize unnecessary causes of eyewitness error.

The witnesses also need to be treated sensitively. People who have been exposed to traumatic incidents may already be upset and may be more upset when reinterviewed or pressured to answer specific questions, which could affect memories. Evidence-based interviewing serves the interests of both witnesses and suspects (Lackey, 2021).

Conclusion

Finally, it may be recalled that eyewitness memory is reconstructive and that there are certain cognitive factors that might affect this process. This essay has dealt with stress, post event misinformation and identification of the eyewitness procedures. High stress has been shown to be a factor in restricting attention, yet some information may not be encoded when it occurs under high stress, but there are examples of strong memory that shows stress does not guarantee bad memory. The evidence of post event misinformation is a potent example of the effect of

information after the event on subsequent recall of it. Last but not least, research on the identification procedure shows that lineup structure and post-identification feedback can affect identification and the level of confidence in the identification (Nyman et al., 2023).

Overall, the research indicates that eyewitnesses are not to be presumed completely reliable or unreliable. How well they can remember the event and how they are later questioned and tested, is dependent on the accuracy of their testimony. Laboratory research offers good experimental controls, but should be correlated with field research, due to the complexity of real criminal events.

Therefore, the implications of the practical and ethical are significant. Evidence-based interviewing, independent witness testimony, double blind identification procedures and immediate recording of confidence can help to minimize memory contamination and wrongful identification. The study of eyewitness memory can also play a role in the more effective investigation of crime and the prevention of the potentially dangerous effects of the misidentification of the innocent.

References

- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*.
Psycnet.Apa.Org. <https://psycnet.apa.org/record/1995-98505-000>
- 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>
- Jellema, H. (2022). Eyewitness evaluation through inference to the best explanation. *Synthese*, 200(5). <https://doi.org/10.1007/s11229-022-03858-w>
- Körner, H. M., Faul, F., & Antje Nuthmann. (2024). Is a knife the same as a plunger? Comparing the attentional effects of weapons and non-threatening unusual objects in dynamic scenes. *Cognitive Research Principles and Implications*, 9(1).
<https://doi.org/10.1186/s41235-024-00579-1>
- Körner, H. M., Faul, F., & Nuthmann, A. (2023). Revisiting the role of attention in the “weapon focus effect”: DO weapons draw gaze away from the perpetrator under naturalistic viewing conditions? *Attention, Perception, & Psychophysics*, 85(6).
<https://doi.org/10.3758/s13414-022-02643-8>
- Kękuś, M., Dziubańska, R., Michalak, K., Romuald Polczyk, Malwina Szpitalak, & Krystian Barzykowski. (2024). Protecting against misinformation: Evaluating the effectiveness of three techniques to reduce memory conformity. *British Journal of Psychology*.
<https://doi.org/10.1111/bjop.12712>
- Lackey, J. (2021). Eyewitness testimony and epistemic agency. *Noûs*, 56(3).
<https://doi.org/10.1111/nous.12380>

- Lindsay, D. S., Wixted, J. T., Fitzgerald, R. J., Hyman, I. E., Mickes, L., & Wade, K. A. (2025). Eyewitness suspect identification: Six claims regarding the state of the science. *Memory*, 1–8. <https://doi.org/10.1080/09658211.2025.2551222>
- Loftus, E. F., Loftus, G. R., & Messo, J. (1987). Some facts about “weapon focus.” *Law and Human Behavior*, 11(1), 55–62. <https://doi.org/10.1007/bf01044839>
- Milne, R., Nunan, J., Hope, L., Hodgkins, J., & Clarke, C. (2022). From verbal account to written evidence: Do written statements generated by officers accurately represent what witnesses say? *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.774322>
- Murphy, E. R. D., & Rissman, J. (2020). Evidence of memory from brain data. *Journal of Law and the Biosciences*, 7(1). <https://doi.org/10.1093/jlb/ljaa078>
- Nyman, T. J., Cappa, G., Zappalà, A., & Pekka Santtila. (2023). Eyewitness identifications based on biased or unbiased line-up instructions after a realistic and violent hostage simulation. *Journal of Investigative Psychology and Offender Profiling*. <https://doi.org/10.1002/jip.1624>
- Swire-Thompson, B., Dobbs, M., Thomas, A., & DeGutis, J. (2023). Memory failure predicts belief regression after the correction of misinformation. *Cognition*, 230, 105276. <https://doi.org/10.1016/j.cognition.2022.105276>
- Tuttle, M. D., Starns, J. J., & Cohen, A. L. (2024). Protecting the innocent in eyewitness identification: An analysis of simultaneous and ranking lineups. *Journal of Memory and Language*, 140, 104581. <https://doi.org/10.1016/j.jml.2024.104581>
- Wade, K. A., Nash, R. A., & Lindsay, D. S. (2018). Reasons to doubt the reliability of eyewitness memory: Commentary on wixted, Mickes, and Fisher (2018). *Perspectives on Psychological Science*, 13(3), 339–342. <https://doi.org/10.1177/1745691618758261>

- Wiechert, S., Verschueren, A., Gershon Ben-Shakhar, Yoni Pertzov, Loftus, E. F., & Verschueren, B. (2025). The misinformation effect: A contemporary replication and extension of Loftus et al. (1978) to investigate its underlying mechanisms. *Journal of Experimental Psychology Learning Memory and Cognition*. <https://doi.org/10.1037/xlm0001529>
- 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>