

To what extent does memory influence the accuracy of a crime scene?

IB Subject: Psychology

Supervisor's Name: Ms. Garlock

TOPIC: The accuracy of crime reports from eyewitnesses during a crime scene

Main Sections, key ideas, and summaries of supporting examples

RESEARCH QUESTION: To what extent does memory influence the accuracy of a crime scene for eyewitnesses?

I. What is the science behind how our brains form memories?

A. In this section I will primarily discuss which parts of the brain correlates to how our memories work. I will later apply this to the factors that confuse the brain.¹

- The hippocampus is an essential part of the brain for memory function especially the transference from short-term to long-term memory, and control of the spatial memory and behavior. In the hippocampus the brain is also responsible for growing more neurons.²
- The amygdala also has a key role in the memory forming process. It is responsible for processing memory and creating emotional reactions, social, and sexual behavior.³

B. This section will begin to clarify the differences between the types of memory, sensory, short-term, and long-term.⁴

- This section will define sensory memory and how it works.
- This section will define short-term memory and how it works.
- This section will define long-term memory and how it works.

¹ United States National Library of Medicine National Institutes of Health

² Parts of the Brain TheHumanMemory.net

³ Parts of the Brain TheHumanMemory.net

⁴ Memory Storage TheHumanMemory.net

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C. This section of the paper I will talk about the key psychologist involved in defining how memory works in the brain.

-Loftus and Palmer and their contribution towards the falsities of memory.

-Case study about Loftus and Palmer

II. Factors that contribute to errant memories.

A. Eyewitness Testimonies according to Loftus and Palmer

B. "This section will talk about how the New Jersey Supreme Court set new rules to cope with failings in witness accounts during an appeal by a man picked from a photo lineup and convicted of manslaughter and weapons possession in 2003 shooting."⁵

C. "Factors such as emotion at the time of the event, social pressures that taint its reconstruction, even flourishes unknowingly added after the fact."

- Emotions affect memory of the crime scene such as anger, fear, sadness, etc.⁶

III. To what extent does threat alter memory for dynamic scenes?

A. Threat alters memory by stressing the victim and creating a sense of panic.⁷

IV. To what extent does children being involved in courtroom forensic investigations decrease the reliability of the court case?

A. Children are being called upon to participate in a variety of forensic courtroom context that begin to affect their general welfare.⁸

- They experience a variety of emotions that influence their reaction and confession of what occurred at the crime scene such as fear, anger, sadness, jealousy, etc.⁹

⁵ The Certainty of Memory Has Its Day in Court by Laura Beil November 28, 2011 NYT

⁶ Children's Eyewitness Memory and Testimony

⁷ When anticipation beats accuracy: Threat alters memory for dynamic scenes

⁸ Children's Eyewitness Memory and Testimony

⁹ Children's Eyewitness Memory and Testimony

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-There is a case study in which children watch a film and then weeks later get evaluated on how much they remember. The children are not told to remember details of the film and are not even told that they will be coming back to the experiment. This study discusses how memory impairment happens all the time, especially during situations with stressors.¹⁰

- The case study where they show participants a traumatic film and then twenty-four hours later they are asked to recount the film¹¹

¹⁰ Children's Eyewitness Memory and Testimony

¹¹ Investigating the variability of memory distortion for an analogue trauma

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Works Cited

Beil, L. (2011, November 28). The certainty of memory has its day in court [Editorial]. *New York times*. Retrieved from <https://www.nytimes.com/2011/11/29/health/the-certainty-of-memory-has-its-day-in-court.html>

This editorial discusses how memory distortion affects the criminal justice system. In this source it compares statements from witnesses as “gold standard of the criminal justice system. It also talks about how the Supreme Court heard its first oral arguments in more than three decades that question the validity of using only witness testimonies. It uses the case study about a New Jersey Court set as an example.

Blanchette, I., & Caparos, S. (n.d.). Working memory functions linked to trauma exposure, independently of post-traumatic stress symptoms. In *Cognitive neuropsychiatry* (pp. 494-509). Retrieved from EBSCO host database. (Accession No. 120493409)

This article is helpful because it discusses how memory links to trauma and therefore, in extreme conditions, creates PTSD. PTSD usually represses memories, which relates to the reliability of memories in crime scenes.

Bourtchouladze, R., & Harle, R. (n.d. Memories are made of this: How memory works in humans and animals. Retrieved from Academic Search Premier database. (Accession No. 18763670) (Reprinted from *Memories Are Made of This: How Memory Works in Humans and Animals*. Vol. 38. Pp. 433-434)

This source is a book review of *Memories Are Made of This: How Memory Works in Humans and Animals*”, by Rusiko Bourtchouladze. This is important because this book has some significant insights on how memory works in humans and animals.

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Crime scene imperfections [Editorial] . (2009, February 21). New York Times. Retrieved from <https://www.nytimes.com/2009/02/21opinion/21sat2.html>

This source talks about the National Academy of Sciences, one of the most prestigious scientific organizations, has surveyed the field of forensic science and found it grossly deficient. It talks about alternative options to use to gain more information about a crime scene.

Greenstein, M., Franklin, N., Martins, M., Sewack, C., & Meier, M. (n.d.). When anticipation beats accuracy: Threat alters memory for dynamic scenes. In *memory and cognition*. Retrieved from Social Full Text database. (Accession No. 114605224) (Reprinted from *Memory and cognition*, Vol. 44, pp. 633-649)

Hamilton, J. (2016, December 1). Zap! Magnet offers fresh insights into how memory works. All Things Considered (NPR). Retrieved from Newspaper source Plus database. (Accession NO. 6CN20162012117)

This source goes into deeper depth about how working memories are stored into the brain. It also discusses the effects of short-term and long-term memories.

Kleider-Offutt, H., M., Cavrak, S.E., & Knuycky, L.R. (n.d.). Do police officers' beliefs about emotional witnesses influence the questions they ask? In *Applied cognitive psychology*. Retrieved from Academic Search Premier database. (Accession No.101471117) (Excerpted from *Applied cognitive psychology*, Vol. 29. Pp. 314-319, Atlanta, GA: Wiley)

Miller, L.A. (n.d). Teaching about repressed memories of childhood sexual abuse and eyewitness testimony. In *Teaching of Psychology*. Retrieved from EBSCO database. (Accession No.

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9711204932) (Excerpted from Teaching of psychology, Vol. 24, pp. 250-255, Lawrence Erlbaum Associates)

This source talks about how children react to trauma in their life and their ability to remember it.

Osborne, D., & Davies P.G. (n.d). Crime type perceived stereo typicality and memory biases: A contextual model of eyewitness identification. In Applied cognitive psychology. (Excerpted from Applied cognitive psychology, Vol. 28. pp. 392-402, Wiley)

Overman, A. A., Wiseman, K.D., Allison, M., & Stephens, J.D. (n.d.). Age differences and schema effects in memory for crime information. In Experimental aging research. Retrieved from Experimental aging research, pp. 215-234, North Carolina)

Parts of the brain. (n.d.). The Human Memory. Retrieved from http://www.human-memory.net/brain_parts.html

This article explains which parts of the brain is responsible for forming certain types of memories. This will be useful when giving the audience background research.

Reczek, R.W., Irwin, J.R., D.M., & Ehrich, K.R. (n.d). That's not how I remember it: Willing fully ignorant memory for ethical product attribute information. In Journal of consumer research. Retrieved from Business Source Premier database. (Accession No. 129662321) (Reprinted from Journal of Consumer Research)

This article can relate to my topic because it shows how people can distort their own memories. It talks about how consumers have better memory for an ethical attribute when a

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product performs well on the attribute versus when a product does poorly on the attribute. It also discusses morally acceptable ways of coping.

Strange, D., & Takarangi, M. K., T. (n.d). Investigating the variability of memory distortion for an analogue trauma. In *Memory*.

This source discusses whether source monitoring errors might be one cause that relates to accounts for traumatic memory distortion. This is shown through a case study where participants watch a traumatic film and then twenty-four hours later completed a memory test.

Wixted, J., & Mickes, L. (2017, June 13). Eyewitness memory is a lot more reliable than you think [Editorial]. *Scientific American*.

This source is unlike my other sources it shows the opinion that memory is reliable compared to other forms of forensic science collection.