

Research Question: To what extent does stress influence people's susceptibility to misinformation effect in negative events?

THESIS: Although it is uncertain how stress impacts susceptibility to misinformation effect, researches support that stress has a strong influence on misinformation effect.

Intro:

- I. As society begins to comprehend the complexity and reconstructive properties of memory, the reliability of eyewitness testimonies is questioned.
 - A. The Innocent Project created in 1992 has since exonerated 316 people who were wrongly convicted using DNA testing in the United States. (2)
 - B. The misconception that memory acts as a recorder has been the basis of the modern criminal justice system. (4)
 - C. The decisions of the jurors are highly influenced by the eyewitnesses (5)
- II. Starting from the 1930s, the concept of memory has significantly changed by the schema theory.
 - A. Bartlett, Brewer and Treyns (15)
 - B. Loftus further supports reconstructive memory through misinformation effect (15)
 - C. Reconstructive memory
 - D. Several other theories were built such as flashbulb memory, with doubt of accuracy. (15)
- III. Although there are several factors that may affect misinformation effect, one significant factor is stress during or subsequent to a crime.
- IV. In the investigation, I limited the subject to negative events or images which are related to crimes or experience a level of stress.
 - A. Based on the assumption that stress is experienced by the eyewitness
- V. This investigation can illustrate a flaw in the modern criminal justice system that may require new solutions relying on new forms of evidence by focusing on one aspect of eyewitness testimonies: stress.
 - A. Misidentification (3)
 - B. Recovered memories (3)
 - C. False confessions (3)
 - D. **False Memory Syndrome (Loftus)
- VI. This paper will explore the extent to which stress affects misinformation effect.

Body:

- I. Stress and Misinformation Effect
 - A. Misinformation Effect is defined as memory distortion due to input of subsequent misleading information
 1. Loftus (1986)
 - a) stop sign and yield sign
 2. Loftus (1974)
 3. There are many different concepts for what causes misinformation effect
 4. Loftus 1995 (19)
 - a) Manipulation of memory
 - B. Stress is response to an internal and/or external stimuli or demand. (14)
 1. Types of stress includes acute and chronic stress.
 2. One inadequacy of stress is its lack of a universal measurement
 3. Release of chemicals - hormones like cortisol
 4. Thus by dividing the study between external events and more personally associated events, the extent to which stress influences vulnerability to misinformation can be

examined based on the assumption that more personally experienced events generates more stress.

- C. In researching the interaction between stress and vulnerability to misinformation, there seems to be two ways in which stress can affect memory from detached events and from personal events.
 - D. Since there is no direct way in measuring memory accuracy, most experiments use questionnaires
 - 1. vulnerable to demand characteristics, and guess
- II. Personally Detached Events
- A. There's no doubt that stress and arousal influenced people's ability to recall events
 - 1. Clifford and Hollin (1981) (4)
 - a) More violence depicted in a crime, the poorer memory recall
 - b) Clifford and Scott (1978) also supported this idea
 - c) Their findings suggests that that the increase in violence of the crime also has an increase in arousal
 - 2. Yerkes-Dodson Law (4)
 - a) suggests that arousal can be beneficial only to a certain extent
 - 3. One method used to study the impact of arousal and stress on memory recall is using short films.
 - a) detached events with less personal attachment
 - b) Action scenes, arousal inducing films, negative slideshows (7, 12)
 - B. Both Hoscheidt and English conducted studies that suggests the reduction of misinformation effect due to stress.
 - 1. However each study applies a slightly different method.
 - 2. Hoscheidt - induces stress prior to encoding
 - a) induces stress through Trier Social Stress Test and the State-Trait Anxiety Inventory
 - (1) Shows significant levels of arousal through salivary cortisol
 - b) Results: Stressed enhanced memory thereby lowering the susceptibility to misinformation
 - (1) During aversive phase (more emotional) with high subjective arousal
 - c) Overall the memory accuracy/retrieval was more accurate with the stress group as also supported by Payne et al 2007
 - (1) Uses same method of measurement
 - 3. English - induce stress after encoding
 - a) Action clip
 - b) Arousal inducted through oral surgery clip
 - c) SMA measurement (subjective mood arousal) - rating
 - (1) demand characteristics
 - d) Results: misinformed aroused participants endorsed less misinformation than neutral participants
 - C. Therefore in cases of personally detached events, stress decreases susceptibility to misinformation
 - D. May Lead to False Confessions or recovered memories
- III. Personally Experienced Events
- A. On the contrary, individuals seem to be more prone to accept misinformation in personally involved circumstances.

- B. Nourkova using case studies
 - 1. Used ratings of personal significance
 - 2. World Trade Center and Moscow Bombings
 - 3. Was there a wounded animal?
 - a) 12.5% of moscow bombing participants accepted the wounded animal misinformation
 - 4. More emotional, but yet more vulnerable to false memory
- C. Morgan - an experiment
 - 1. Military students - interrogation
 - a) well trained to avoid misinformation
 - 2. Leading questions to misinform
 - 3. Stress was not directly measured, but CADDIS was same for all groups
 - 4. Students were still highly vulnerable to misinformation despite stress
 - 5. Low reliability, other factors like sleep deprivation might have an affect
- D. This overall suggests that in stressful conditions, more emotionally related events are more susceptible to misinformation
 - 1. Not necessarily personal
 - 2. Contradicts the findings in external events
 - 3. Yerkes-Dodson Law
- E. These events may be considered more traumatic
 - 1. Flashbulb memory - increase confidence of memory recall, but not the accuracy
 - 2. Emotions do not protect memory distortion

IV. Flashbulb Memory

- A. Theory suggests that memory that is very emotional has much more vivid images and may mean more accuracy
 - 1. Brown and Kulik 1977
 - a) More related personally and contains emotional attachment
 - b) Memory is vivid with clear details
 - 2. Phelps 2004
 - a) Flashbulb memory may have different processing than other forms of memory
 - b) Amygdala activity and proximity
 - 3. However, studies still suggests that despite the clear images, FB memory does not preserve accuracy
 - a) Neisser and Harsch 1992
- B. This implies that highly emotional memories can be more vulnerable to misinformation
 - 1. Crimes may be a FB memory - confidence in the memory does not mean accuracy
 - 2. Arousal can have a negative effect on memory retrieval

V. Evaluation

- A. Measuring Stress
 - 1. Use of different methods of measuring stress
 - a) Different factors
 - 2. Few studies that can be conducted
 - 3. Rather new field
- B. Still do not know exact process
 - 1. Amygdala may be related
 - 2. Episodic memory
 - 3. The original memory

- C. Questionnaires
 - 1. Demand characteristics
 - 2. Guessing
 - D. Degree of Misinformation
 - 1. Subtlety of leading questions
- VI. Other Potential Confounding Factors
- A. Confidence Levels and Memory Distrust
 - 1. Memory Distrust Syndrome coined by Gudjonsson 1978 - lack of trust in own memory, making people vulnerable to information from outside sources resulting in false memories
 - a) Related to depression and low self esteem
 - Bergen et al.
 - Memory distrust: “phenomenon that is closely related to source amnesia, since people suffering from memory and information that is externally suggested”
 - “prone to rely on others”
 - Aim: whether memory distrust is related to an increased tendency to accept misinformation
 - 80 participants - self selected, small community (Maastricht University)
 - Armed robbery
 - Free recall, questionnaires and tests from 1 day to 2 weeks
 - Memory distrust are more susceptible to misinformation than those who are confident
 - Need more research to see if the susceptibility would increase over time
 - Better to see if a specific age would still have same impact
 - 2. The jury also bases their judgement on the confidence of the witness
 - B. Time
 - 1. According to Loftus 1978, time is a major influence on misinformation (Porter, Bellhouse, McDougall, ten Brinke, & Wilson, 2010)
 - 2. More chance of encountering misinformation
 - 3. Reconstructive memory

Resistance to misinformation endorsement