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### Fallibility of Eyewitness Testimony

Attempting to thwart the assault that takes his wife's life, Leonard Shelby (Guy Pearce) receives a sharp blow to the head and afterwards finds himself incapable of creating new memories. Shelby then takes it upon himself to track his wife's killer, using a massive collection of Polaroid photos, tattoos, notes, and the aid of strangers. The story, however, is not so simple. *Memento* deals explicitly with the element of trust: trusting strangers, trusting one's instincts, trusting one's own memory. In order to do so, the film directly confronts the viewer's own abilities to recall events as an observer, and subsequently calls into question the reliability of the eyewitness in general. In this regard, cognitive psychology experts like Elizabeth F. Loftus readily argue against the use of eyewitness testimony in court proceedings, pointing to the high likelihood of contamination of the eyewitness's testimony (21). Eyewitness testimony is fallible because memory is fallible. For this reason, eyewitness testimony should only be considered admissible in conjunction with the consideration of evidence and other factors bearing significance on the function of the memory process.

Law and psychology experts agree that while memory is not completely reliable, it can still be a plausible outline of events used to corroborate circumstantial evidence (Cutler and Penrod 139-42). Essentially, an eyewitness may have a general idea of what happened in a particular event, but his recollection of the important details can become

distorted. To understand why eyewitness testimony must be supported by facts, one must consider the way psychologists believe that memory is established. Memory is a biochemical process that occurs in the hippocampus of the brain. The brain naturally routes sights, smells, sounds, and anything else that may be associated with the event to different areas of the brain and stores them until they are refreshed again (Toufexis and Blackman 2). For example, a murder witness might recall vivid details of the crime upon the sight of the weapon, or other significant piece of evidence. Psychologists arrange this process which describes how the brain behaves and can be affected by outside factors during the *acquisition*, *retention*, and *retrieval* phases of the memory process (Loftus 21).

In the acquisition stage of memory making, “the perception of the original event...is encoded, laid down, or entered into a person’s memory system” (Loftus 21). Factors contributing to the corruption of memory at this stage can be divided into two major categories, the first of which are *event factors*, or dynamics of the situation that are not under the witness’s control (23). Memories are often acquired inaccurately because the *exposure time* an observer has to view a scenario is substantially reduced. For example, an eyewitness’s account of a car accident might not be sufficient evidence by itself because of the limited amount of time the observer had to process the sequence of events. The witness’s account, however, could be greatly substantiated by a piece of concrete evidence, such as a photo from a camera mounted at the stoplight of an intersection. Most hypotheses supposed that an increase in exposure time would translate to an increase in positive suspect identifications, and they were correct. Loftus describes multiple studies in which doubling exposure time led to more than twice the previous number of positive identifications (23-4).

The acquisition phase is additionally compromised through the principle of *salient details*. Salient details have “a high probability of being spontaneously mentioned by individuals who witness a particular event.” Some situations are so complex, however, that the brain physiologically cannot process the entire scenario (25). As a result, specific details stand out against the general picture because the brain must choose what sensory responses are significant enough to imprint. Since the importance of details varies by individual, not every eyewitness recalls the same ‘memorable’ features. Consider the analogy of the car accident once again. One observer may recall that one vehicle was a sports car and one vehicle was a sedan, but may only remember that the cars were darkly colored. The other observer may recall that one car was black and the other was dark blue, but may not remember the difference in body style.

A memory can likewise be altered by the *level of violence of an event* (Loftus 31-2). This characteristic is directly linked to salience. Exceptionally traumatic events override the brain’s natural ability to distinguish between the significant and the insignificant; accordingly, the ability to form specific memories is substantially hindered (Ross 118).

An example of the way that the level of violence influences the memory process is a phenomenon referred to as “weapon focus.” A victim held up in a well lit alley at gunpoint is the most likely to focus on the weapon than any other detail of the event, such as the color of the assailant’s shirt or his attacker’s approximate height and weight. Since the gun in this case provides the biggest threat to the individual’s well being, he will naturally ‘forget’ about much of anything else going on around him (Loftus 34-5). More extreme scenarios may influence the onset of anterograde amnesia and post-traumatic

stress disorder (Christianson 290-3), or in children, dissociative identity disorder (Ross 118). Although an eyewitness to an armed robbery may not necessarily develop PTSD, the jury should consider the eyewitness's account in respect to both the mental state of the witness and the physical evidence present in the case, such as security footage.

The second category of dynamics that affect the first phase of memory-making are commonly classified as *witness factors*. These are the attributes that make the difference between “witnesses [that] try very hard to remember all of the details that they can, while others are preoccupied with thoughts such as, ‘how can I get myself out of this situation?’” (Loftus 32). The biggest subcategory here is *stress*. The principle that describes the relationship between stress levels and memory function is called *Yerkes-Dodson's law*. The law states that learning and memory performance can be enhanced by the presence of “strong emotional states, such as stress or other emotional arousals,” such as cramming for an exam. After a particular point, however, performance will fall off drastically. Loftus emphasizes that the “location at which [memory] performance begins to decline is determined by the difficulty of the task” (33). Recall Loftus's analogy of the victim held up at gunpoint. The stress level is directly affected by a factor beyond the witness's control (the level of violence). Stress in this scenario climbs beyond normal levels, and the individual's capacity to absorb details surrounding the assault drops almost to the point of amnesia. To protect the rights of the defendant and mitigate an outcome that is just and fair for both parties, juries should also evaluate significant evidence, such as a confirmed alibi or past record of similar criminal activity that could change the outcome of the verdict.

Experts recognize two other elements that contribute to witness factors. One of these is called *perceptual activity*. A witness may simply be tying his shoes outside of a bank, but may not realize a robbery has occurred until the armed suspect runs past him. Since the witness's attentions were not explicitly on the crime at hand, he is less likely to absorb more of the situation, and his account of the incident will likely reflect what he had later learned, not what he had originally seen (Loftus 48-9). Witness's *expectations*, or "past experiences that affect perception," have also been shown to negatively affect testimony. *Expectations* are classified into three different groups and explain why multiple eyewitnesses may notice different salient details. *Cultural expectations* and *personal prejudices* are different scales of stereotypes, are frequently inaccurate, and consistently influence what a witness chooses to remember (37-40). *Temporary biases* are slightly more abstract, but describe initial perceptions that can change through knowledge (40-1). For example, an individual may see an optical illusion drawing of a mouse, but upon further discussion, will see the portrait of an ugly woman that another person originally observed.

Temporary biases are some of the key links to understanding flaws in the second step of processing a memory. The *retention stage* is simply the block of time between acquiring and recalling a memory (Loftus 22). Members of a trial jury should consider that this is the phase where a witness's memory is most likely to compensate for gaps in the timeline of an event (Cutler and Penrod 11). As such, reinforcement of all testimony through evidence is vital at this stage. Although time reduces the ability to retain a memory, obtaining *postevent information* is a key factor and liability in the memory's compensation effort (Loftus 54). *Enhancing a memory* and *compromising a memory* are

processes that occur simultaneously after a memory has been imprinted. For example, after a car accident, bystanders may discuss their impressions of the collision. A witness compiles details from the discussion and may later recall something that may have happened, but may not have been seen. Respectively, when individual accounts of incidents differ during a discussion, memories are compromised to match others, which results in the introduction of “non existent objects” (57-9).

According to Loftus, two characteristics of memory *retention* overlap with and influence the third phase, the *retrieval of information*. *Investigations by the authorities* are efforts to retrieve information, but may unintentionally affect memory retention. This is directly related to the *wording of the question*. Investigators may pose scenarios to the witness in order to help the witness recall details, but unwittingly influence what the witness thinks he may have seen. For example, “‘Did you see the broken headlight?’ means ‘There was a broken headlight – did you see it?’” (94-5).

Similarly, the *retrieval environment* and *who is questioning the witness* in that environment affect the *timing of obtaining postevent information* in the retention process (89, 97). The relationship of the two phases is best illustrated by considering issues in the ethics of practicing law. A ruthless defense lawyer will attempt to discredit the state’s key eyewitness by undermining his confidence in what he claims to have seen during an incident (Lindsay 370). He does this by placing new post-event information next to the witness’s recollections of the event, perhaps during a heated cross-examination. Frequently, the new information will not match up with what the witness saw and the witness becomes confused. (Loftus 64, 101). The witness’s credibility is lost, and the

testimony can become useless, despite a history of a solid and admirable character devoted to honesty.

The unreliability of eyewitness testimony lies in more than the questionability of personal standards of ethics and morality. The memory is a complex three-step process that, like any machine, is fallible in each stage. Christopher Nolan's *Memento* reminds the world that memories are "irrelevant if you have the facts." The facts here are that twenty percent of all criminal convictions in the United States are assumed to be "erroneous." Sixty percent of these convictions are made on the basis of inaccurate eyewitness testimony (Cutler and Penrod 9-11). In the end, eyewitness testimony is not adequate evidence by itself in criminal proceedings because the very nature of memory conflicts with legal standards that regulate accuracy.

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