

How does memory work?

by [Daniel H. Swerdlow-Freed, Ph.D.](#) on January 15, 2020 in [Forensic Services](#)

Understanding the mechanics of how human memory works is necessary for assessing allegations of child sexual abuse. In his text, memory researcher Richard McNally (2005) explains basic principles involved in memory for normal and traumatic events. Following is a summary of processes that are relevant when evaluating these allegations.

Memory involves the capacity for acquiring, storing and retrieving information and involves a three-stage process. First, a stimulus (i.e., the situation, event, information, et cetera to be remembered) must be attended to and perceived, which allows it to be encoded. Next, the information must be stored in long-term memory. Finally, when the information is to be used, it must be retrieved and brought into awareness. In general, information that is properly encoded, stored and retrieved can be remembered. Conversely, complete or partial memory failure can occur in instances where information was not properly encoded, stored or retrieved.

Personal memory is referred to as autobiographical memory and consists of experiences a person has about their life and facts that are known about one's self. Remembering where you ate dinner last night involves recalling a specific life event and is referred to as autobiographical episodic memory. Remembering your age, telephone number and social security number also involves autobiographical memory but is an example of recalling facts about one's self.

Autobiographical memory does not work like a video-recording, wherein every stimulus, situation or event is accurately recorded and stored, and reproduced in its entire original form each time it is remembered. Instead, memory is *reconstructive*. When an event is retrieved from memory, it is reassembled from the



elements that are encoded and stored throughout the brain. Furthermore, the reconstructive process is influenced by a person's life experiences and what is known about the world. The fact that memory is reconstructive is especially evident when

someone experiences numerous episodes of a similar event (i.e., repeated events), as Linton (1986) explained in McNally (2005):

“Consider someone who has traveled by air only once versus someone who has flown many times. The first person is likely to retain a reasonably specific memory of that single, memorable flight. The second person, for whom memories of many flights will tend to blend together into a generic memory of “flying on airplanes,” will find it tough to remember the details of any particular flight unless something unusual happened during it. But even though this generic memory does not correspond to any particular flight, it will be just as vivid as the memory of the person who has flown only once” (pp. 35-36).

Memory researchers refer to an autobiographical memory of a single event as an *episodic* memory, and generic memories of repeated events are referred to as *script* memories. In general, episodic memories are easier to recall because their novelty tends to make them distinctive.

While recalling individual episodes of repeated events generally can be more difficult, having the same experience numerous times will strength the overall memories, or the ‘gist’ for the entire type of events. Thus, someone who flies frequently may not be able to recall specific details of certain flights, but they will not lose all autobiographical memory of their air travel. Furthermore, if something out-of-the-ordinary happened during a specific flight (i.e., bad weather, extreme delay, illness) the unusual details often helps make that episode memorable.



There is widespread agreement among memory researchers that as time passes, many memories weaken, become less distinct and are more difficult to recall. At the same time, some memories improve despite the passage of time, particularly ones that are distinctive and emotionally meaningful.

Under certain circumstances, memory recall of an event may improve, a phenomenon called *reminiscence*. Reminiscence occurs when new information (i.e., event details) is recalled during a second, third or subsequent retelling of an event report.

A related memory phenomenon is *hypermnesia* and works as follows. When a person makes numerous event reports, it is normal that some details related at Time 1 may be omitted at Time 2. It is also expected that some details may be reported at Time 2, even though they were not mentioned at Time 1. Hypermnesia is said to occur when there is a net increase in the amount of information recalled over numerous retellings of an event.

For more information about this topic or to schedule a consultation appointment, please call Swerdlow-Freed Psychology at 248.539.7777. Our offices are conveniently located at 30600 Northwestern Highway, Suite 210, Farmington Hills, Michigan, and 55 North Pond Drive, Suite 6, Walled Lake, Michigan 48390.

Reference

McNally, R.J. (2005). *Remembering trauma*. Cambridge, MA. The Belknap Press.