# The "Seven Sins of Memory"

How They Affect Your Program

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People's memories are flawed. During the 24th Army Science Conference in Orlando, Fla., in December 2004, Harvard University psychology professor Daniel Schacter presented his theories of the "seven sins of memory" to the Army's scientific community. In addition to providing a brief description of these memory problems, he effectively demonstrated that I, along with the rest of his audience, exhibited the problems. If a person's memory is not accurate, decisions based upon these faulty memories can cause significant problems. Thus, program managers, including civilian leaders, military officers and Lean Six Sigma (LSS) practitioners, should be cognizant of these issues and mitigate them to improve their leadership abilities, primarily decision making.
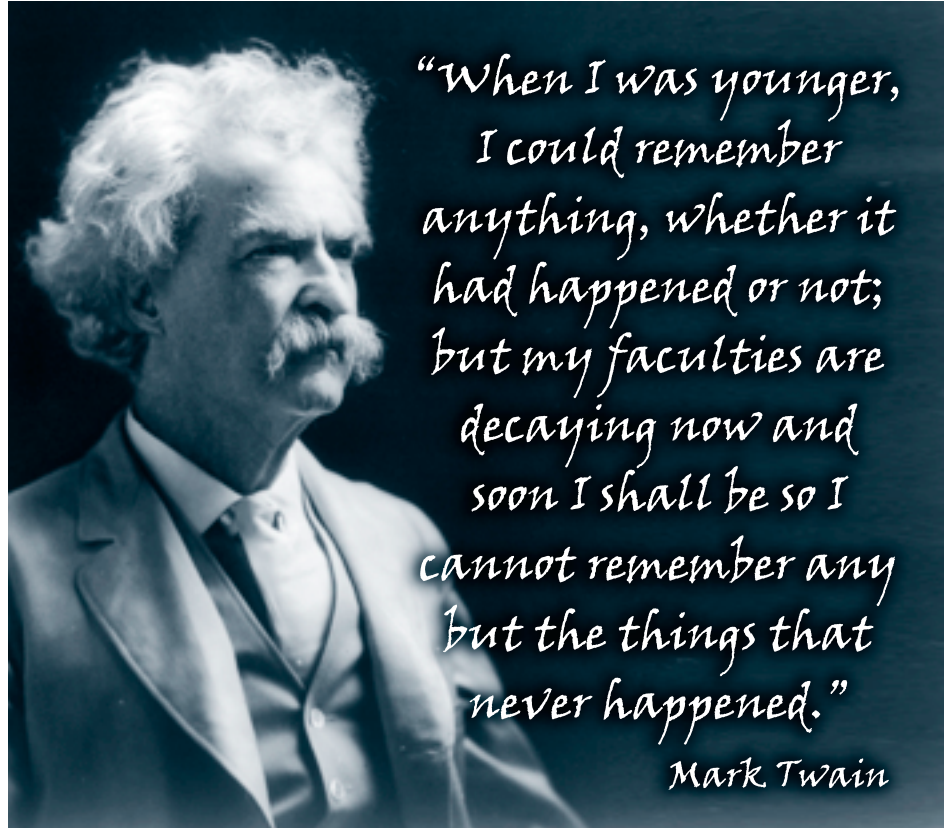
"When I was younger, I could remember anything, whether it had happened or not; but my faculties are decaying now and soon I shall be so I cannot remember any but the things that never happened."

Mark Twain

Transience: a decreasing memory over time

In 1885, German psychologist Hermann Ebbinghaus published his groundbreaking article "Über das Gedchtnis" ("On Memory") in which he described experiments he conducted on himself to describe the process of forgetting. A popular schematic of this problem is the forgetting curve, which illustrates the decline of memory retention over time. The stronger the memory, the longer one retains it. A typical graph of the forgetting curve shows that humans tend to halve their memory of newly learned knowledge in a matter of days or weeks unless they consciously review the learned material.

- Program managers should be aware that memory fades with time, and that the best way to obtain information from a person is to obtain it quickly after the event. Conduct an after-action review immediately after an activity.

Absent-mindedness: forgetting to do things

This is memory loss resulting from failure to pay attention when carrying out an act—putting your keys or glasses down without registering where you're putting them. Schacter's example involves cellist Yo Yo Ma. In October 1999, Ma left his $2.5 million cello, made in 1733 by Antonio Stradivari, in a New York cab. Apparently, he was preoccupied with other things and forgot to remind himself to ask the cab driver to retrieve his cello from the trunk.

- People are prone to forget important tasks. A good technique to diminish this problem is to apply a couple of

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Stephen Covey's techniques from *Seven Habits of Highly Effective People*— specifically to be proactive and to put important things first. Develop a prioritized task list and use it throughout the day.

Blocking: the tip-of-the-tongue experience
This is characterized by being able to retrieve quite a lot of information about the target word without being able to retrieve the word itself. You may know the meaning of the word, how many syllables the word has, or its initial sound or letter, but you can't retrieve it. The experience is coupled with a strong feeling that you know the word and that it is hovering on the edges of your thought.

- Be aware that people on your team may not remember the exact information that is required when needed.

Misattribution: attributing a memory to an incorrect source
An example of this is hearing something from a friend and thinking that it was heard on the radio. An example of this involves Donald Thomson, a memory researcher, who in the 1970s appeared in a television show on the unreliability of eyewitness testimony. Not long after the show aired, he was picked up by the police because a rape victim had identified him as the rapist. He had an unshakable alibi: The assault had occurred when he was on TV describing how people could improve their ability to remember faces. The victim had been watching Thomson on TV before the attack and had confused her memory of him with her memory of the rapist.

I recently conducted a couple of experiments with several senior military leaders and LSS candidates. In the first experiment, I asked participants to read a four-line passage orally and count the number of times that a specific letter of the alphabet occurred. No matter how hard they tried, and retried, about half of them were unable to come up with the correct number. This was significant, since several of them were field-grade military officers who possessed graduate degrees and should have been fully capable of identifying their alphabet letters. In the second experiment, I read a list of 15 words orally to these same leaders to determine their short-term memory retention. Over 90 percent of them remembered a word that was not given to them, thus creating a false memory.

- People have a tendency to remember things that didn't happen. The best way to counteract the effects of this kind of memory issue is to be diligent in taking notes of important events. Take minutes from all meetings, regardless of whether someone else is taking notes. Record important events on a daily basis in a daily planner. This has the added benefit of helping you to identify accomplishments for periodic performance evaluations.

Suggestibility: implanted memory from others
PMs need to be careful about the way in which they solicit information from others since the way a questions is asked may generate false information. The following are six different types of questions that can illicit a false answer or inaccurate memory:

1. Assumptive Question. This bases the question on an assumption. "How much will the price of gas go down next month?" assumes that the price will go down.
2. Linked Statement. This links two different items together and does not provide the same information for both items. Asking "Would you prefer to live in Clinton or Terre Haute where the crime rate is high?" doesn't mention anything about the crime rate in Clinton.
3. Implication Question. This provides a cause and effect result to the answer of the question. "If you stay out late tonight, how will you remain awake at work tomorrow morning?"
4. Asking for Agreement. This is typically the closed question that requires either a "yes" or "no" answer. "Do you agree that we need to save the whales?"
5. Tag Question. These usually involve short phrases that end in a negative question. "You are coming to the very important LSS meeting, aren't you?"
6. Coercive Question. The context or tone of the question results in either an implicit or explicit coercion. In the following example, "How can you say that you will not be there?" the questioner conveys negative consequences for not attending.

- You are most likely to get accurate answers if you word questions in a neutral way.

Bias: distortion based upon knowledge, beliefs, and perspective
You need to understand the basis of the information that people provide. If four people observe the same object or event, they will describe it from four different perspectives. Here's how four people might describe the movie *The Wizard of Oz*:

1. The young child will tell the story, listing the sequence of events (not necessarily in the right order).
2. The emotional child will explain that the movie was very scary with witches and wizards and flying monkeys.
3. The adolescent will explain the special effects in the movie.
4. The intellectual will identify the themes of the movie.

- Different people on your team will remember the same thing in different ways, so you need to assess these differences in your decisions. For example, the PM may need to assess conflicting information by considering both the engineer's desire to quickly solve problems using existing knowledge and the scientist's desire to delay problem solving in order to discover new knowledge.

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Persistence: unwanted memory

Within the military, the most prevalent example of this is Post-traumatic Stress (PTS) Disorder. Audie Murphy, the most decorated American soldier in history at the time of World War II, suffered from PTS as a result of his experiences. According to his first wife, he suffered terrible nightmares and always slept with a gun under his pillow. There are three symptoms that program managers must understand:

1. **Intrusion.** Since the sufferer cannot process difficult emotions in a normal way, he or she re-experiences the trauma in recurrent nightmares or daytime flashbacks, leading to high anxiety levels.
2. **Hyperarousal.** Characterized by a state of nervousness, the person is in fight-or-flight mode, exhibiting jumpiness in connection with sudden sounds or movements.
3. **Avoidance.** The event is so distressing that the person strives to avoid contact with everything and everyone—even his own thoughts—that can arouse memories of the trauma. This leads to isolation.

■ By understanding and recognizing the symptoms of PTS, you'll be in a better position to help make a non-productive team member suffering from unwanted memories into a productive one. If possible, work with the team member to determine why he or she is unable to contribute to the team, and then try to establish an environment that mitigates the unwanted memory. In extreme cases, the individual may need to seek professional help, and you should be willing to support this help as needed.

What You Can Do

The following is a consolidated list of seven actions—"penance" for the seven memory sins. Performing them will improve the accuracy of the information obtained from others. Failure to do so will result in your making poor decisions based on faulty information—and that can seriously impact the outcome of your project.

1. Obtain information quickly after an event, when it's fresh in people's minds.
2. Use a prioritized task list.
3. Take notes from important events, including meeting minutes.
4. Record important events and milestones daily.
5. Use neutrally worded questions when soliciting information.
6. Understand the basis or perspective of the person providing the information.
7. Understand and recognize the symptoms of PTS.

The author welcomes comments and questions. Contact him at scott.haraburda@us.army.mil.