

Memory and Forgetting

by Sophia Tutorial



WHAT'S COVERED

This lesson will cover the reasons why information is not remembered. Our discussion breaks down as follows:

1. Forgetting
 - a. Short-Term Memory
 - b. Long-Term Memory
2. Reasons for Forgetting
 - a. Encoding
 - b. Decay Theory
 - c. Retrieval Failure
 - d. Suppressing/Repressing

1. Forgetting

Memory isn't necessarily perfect. Sometimes a person doesn't remember things well or forgets information that they had previously learned. Forgetting literally means not remembering. Put another way, forgetting means that a person is not able to retrieve information from their memory.

There are two types of memory:

- Short-term memory
- Long-term memory

1a. Short-Term Memory

Short-term memory stores information in small amounts for short periods of time. In other words, forgetting is part of the process of short-term memory. Any information that we want to remember further doesn't stay in our short-term memory; it moves into our long-term memory.

Information can be kept for longer in our short-term memory if we **repeat or rehearse** it. This reinstates the information into our short-term memory for several seconds. Then, however, unless it is encoded and stored in the long-term memory, it's forgotten.



TERM TO KNOW

Repetition/Rehearsal

A way of keeping information in a person's short term memory, where the person says it to himself or herself and practices it, which puts it back into the short-term memory for longer times

1b. Long-Term Memory

However, typically when a person says that they are forgetting something, they are referring to losing it from long-term memory. How does this work exactly? In 1885, a psychologist named Hermann Ebbinghaus performed some of the first psychological experiments on memory and forgetting. He tested his own memory retention by trying to memorize three-letter nonsense syllables, like w-o-l (wol), or g-e-x (gex).

He tested his ability to remember them over different periods of time. This led him to create the **curve of forgetting**, a graph that is still used today to understand how forgetting works. It shows that people begin to immediately forget information up to a few minutes, or even a few hours, after encoding.

There's a drastic change in how much we remember within a relatively short period of time. Ebbinghaus found that within a day or two, his forgetting started to level off, until about six days. This was when it basically leveled off, at around 30% retention for the nonsense syllables that he was learning.

After that, forgetting remains relatively stable, and our long-term memory is almost permanent in certain ways. This is particularly true with meaningful information, versus the nonsense syllables that Ebbinghaus was learning.



TERM TO KNOW

Curve of Forgetting

A graph created by Herman Ebbinghaus that shows that people immediately begin forgetting large amounts of information up to 2 days after learning; then, forgetting slows down between 6 and 31 days, after which, it remains relatively stable

2. Reasons for Forgetting

Now, the amount of information that can be retained is even higher than 30%, and it can be a lot more stable. Why do we actually forget? Psychologists have found that there are several different reasons, and they relate to the process of creating memories in the first place.

2a. Encoding

Creating memories means first encoding the information so that we can understand it, then storing that information in our brains, and finally retrieving it later for usage.

One reason that we forget something can be an **encoding failure**. This refers to an inability to actually form the memory in the first place, and to put it within long-term memory.

In an experiment done by Nickerson and Adams, some people were asked to identify what a penny actually looks like, out of a series of images containing multiple fake ones and one correct one.

They found it was difficult, because people don't pay attention to a lot of the details that make up a penny, like which direction Lincoln's head is facing, or where the information is placed on either side of him. Humans only encode the things that they actually need to remember--like what a penny basically is and how it's different from other coins. This was an example of an encoding failure, because people didn't pay attention to those details and move them into long-term memory.



TERM TO KNOW

Encoding Failure

The inability to form a memory and store it in the long-term memory

2b. Decay Theory

The idea of "use it or lose it" is also true for memory. When memory is formed and encoded into storage, something called memory traces are created. These are new connections and changes within the neurons of the brain.

The decay theory states that over time, these connections begin to fade and disappear unless they are repeated or rehearsed. Unless we use that memory in some way, eventually it will disappear from our long-term memory. This creates what is called a storage failure, although many memories stay with us for a longer period of time, so decay theory isn't absolute.



EXAMPLE Sometimes we can remember things from our childhood that we haven't thought about for a very long time.

2c. Retrieval Failure

Retrieval failure is another reason for forgetting. This occurs when there is some interference in retrieving information. Certain memories, either new or old, can compete with each other and make it difficult to remember specific information that we have. A person is not able to access memories within their mind, because other ones are getting in the way.

2d. Suppressing/Repressing

A person can also intentionally forget memories. This can happen either consciously, by suppressing the information, or unconsciously, by repressing the memories. This is especially applicable to very unhappy or unpleasant memories from different periods of life that a person may want to forget. The memory is unconsciously put to the back of memory storage; it is still there, but it's something that the person doesn't want to think about.



SUMMARY

Forgetting literally means not remembering, and it is the inability to retrieve information. Forgetting is a natural part of short-term memory; most of the information processed by short-term memory is forgotten. When a person says they have forgotten something, they are usually referring to information from their long-term memory. There are several **reasons for forgetting** information: an encoding failure, lack of use, retrieval failure, or suppression/repression.

Good luck!

Source: This work is adapted from Sophia Author Erick Taggart



TERMS TO KNOW

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