

What is Memory?

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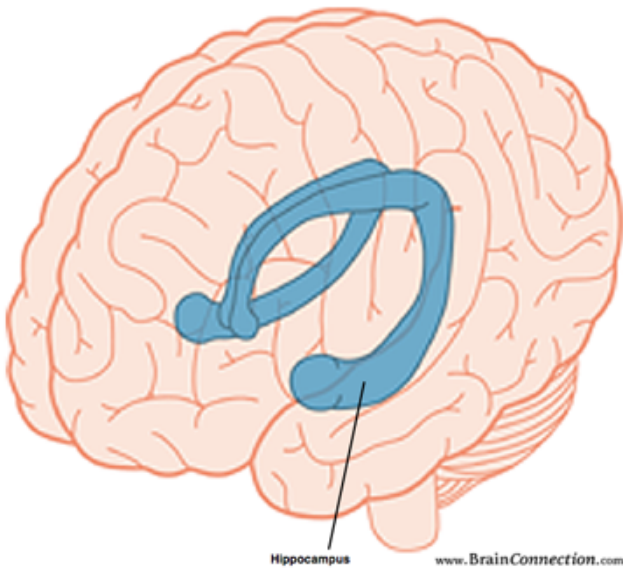
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What is a memory?

Remember that soccer game you played last year? Both teams were tied at two points and *you* had the ball. You ran as fast as you could down the field and scored the winning goal. You remember everyone cheering for you, the warm summer air, and how happy you felt. That is a memory, but how do you store those specific memories?



A **memory** is when an event happens, you meet someone, or you learn something, and your brain determines if the new information you learned needs to be saved. Some of you may know different parts about the brain and how it works but a memory is stored in the **hippocampus**.

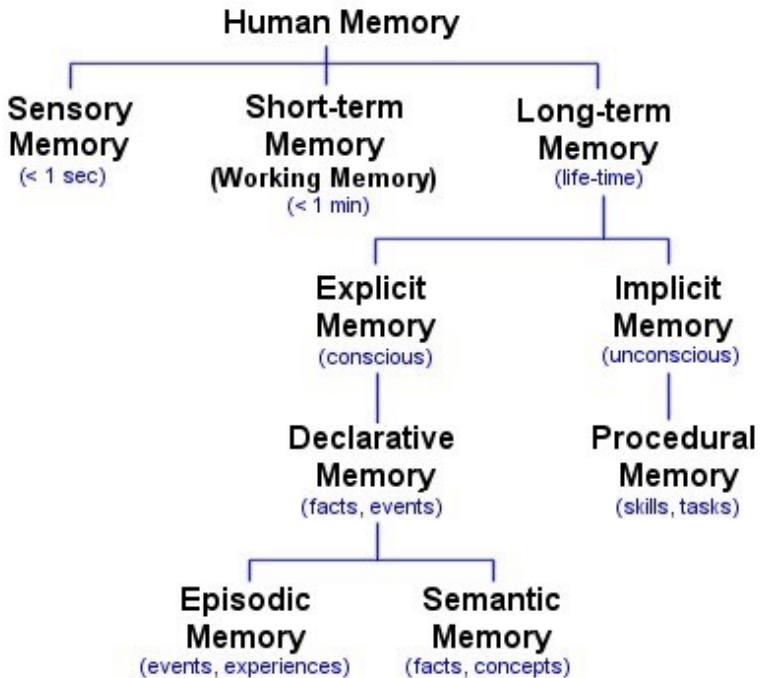


This tiny part of the brain helps you form long-term memories, connect memories to other memories, and relate memories to emotions. Like the example used above you think back about making that soccer goal and you get excited and happy.



What are the different types of memory?

There are many different types or forms of memory that each have their own important roles they play. There are three “stages” to memories.



The first stage has **sensory memory, short-term memory, and long-term memory.**

Sensory memory usually lasts about five seconds and is most commonly used in sight, hearing, smell, taste, or touch. For example, if you take a quick glance at a shirt in the mall and can remember what it looked like with just a second of observation. Short-term memory is used to help us recall information. It is usually 7 items or less, which is why phone numbers only have 7 digits. Long-term memory is stored over a very long period. We can store unlimited amounts of information for basically your whole life. You will always remember your parents' names or where you were born.



The second stage has **explicit memory** and **implicit memory**. If you learn a new formula in math sometimes it takes a long time to figure out how to do it. You may spend multiple days working on the formula before you can do it easily without any problems. That is explicit memory, or memories that you must constantly work to remember. Other times you may be walking through the store and suddenly you start singing the song you heard on the radio the other day. That is known as implicit memory, or memories that you remember unconsciously and effortlessly.



The third stage can get a little more confusing. The memories get a lot deeper, since inside explicit memory there are **3** other types of memories and inside implicit memory there is **1** other type of memory. The first memory inside explicit is called **declarative memory** which focuses specifically on memories of facts or events. There are two different types of declarative memories that you can have. The first one can be an **episodic memory** which is a memory of a specific event such as what you did yesterday at school. The other one is **semantic memory** which is memories of facts, names, or other general information such as your favorite movie. The memory inside of implicit memory is called **procedural memory** which is a memory of how to perform a specific task like kicking a soccer ball or making cereal.



What can go wrong with memories?

Memories are wonderful things, but sometimes they do not always stay that way. It is normal to forget the name of someone or an answer to a test question. It is even normal for people to forget things as they grow older, such as events that happened when they were a baby. There are also different diseases that can cause you to have memory problems, such as **Alzheimer's disease**, which causes nerve cells to stop working and leads to memory loss.



Besides diseases there are also medical problems that can stop memories such as **traumatic brain injury**. This results when you get a hard hit to the head in a car accident, bike accident, or other accident and you can't recall any memories. Another medical problem that can happen are **strokes**, which are more often in older people. A stroke happens when there's not enough blood going to all the parts of your brain which can cause blockage of memories and other brain functions.



Can your memories be controlled?

No, sadly no one can fully control their brain's memories. Long-term memory makes it very hard to forget memories that we don't want to remember since they are always deep inside the mind. The more times you try to forget something the more it tends to come up as a memory since you are constantly thinking about it.



Fun Facts!

- There is no limit to the amount of information you can remember.
- We can remember things that didn't even happen to us.
- Testing yourself on information is better than rehearsing or re-reading it.
- (Almost) forgetting something makes you more likely to remember it.
- Memories start forming when your mom is 4 months pregnant with you.
- Your memories are scattered all over your brain, not just in one place.



Post reading questions:

1. What part of the memory do you recall phone numbers?
2. _____ happens when you hit your head during an accident.
3. Why can't your memories be controlled?
4. What part of the brain are memories stored in?
5. What's the result when enough blood can't get to all parts of your brain?
6. _____ is the memory of facts, names, or other important information.

Glossary

Alzheimer's: Progressive mental deterioration that can occur in middle or old age, due to generalized degeneration of the brain.

Declarative Memory: Consists of facts and events that can be consciously recalled or “declared.”

Episodic Memory: A person's unique memory of a specific event, so it will be different from someone else's recollection of the experience.

Explicit Memory: Is a memory in which we store facts.

Hippocampus: The elongated ridges on the floor of the lateral ventricle of the brain, thought to be the center of emotion, memory, and the autonomic nervous system.

Implicit Memory: Sometimes referred to as unconscious memory or automatic memory, it uses past experiences to remember things without thinking about them.

Long-Term Memory: A system for permanently storing, managing, and retrieving information for later use.

Memory: The faculty by which the mind stores and remembers information.

Procedural Memory: Part of the long-term memory that is responsible for knowing how to do things.

Semantic Memory: Part of the long-term memory that processes ideas and concepts that are not drawn from personal experience.

Sensory Memory: Stores information long enough to be transferred to short-term memory.

Short-Term Memory: Information is stored for roughly 30 seconds.

Stroke: A disease that affects the arteries leading to and within the brain.

Traumatic Brain Injury: A non-degenerative insult to the brain from an external mechanical force possibly leading to permanent or temporary impairment.

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Common Core

CCSS.ELA-LITERACY.RL.3.1

Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

CCSS.ELA-LITERACY.RI.3.2

Determine the main idea of a text; recount the key details and explain how they support the main idea.

CCSS.ELA-LITERACY.RI.3.7

Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

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