

# THE WARBLER

## AN EDUCATIONAL WEEKLY

ISSUE

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MAY 25, 2021

### Dear Student, Artist, Thinker,

I remember being in school and taking tests and thinking “wouldn’t it be great to have a photographic memory. I could just flip through the textbook and instantly encode all of that information in my brain, and then kick back and watch a couple of episodes of *The Office* instead of studying.” Looking back, I now think I was a fool, and a lazy one at that! Memory is wonderful, but it’s nothing without forgetting.

The importance of balancing memory and forgetting became one of my favorite ideas when I first read *The Library of Babel*, a short story by Jorge Luis Borges. In it, he describes a library that is complete – its shelves include all possible combinations of letters, periods, spaces, and commas. At first, we’re supposed to be impressed. Such a library would contain all of the knowledge that could ever be expressed with human language. Somewhere within its walls would be the most beautiful poetry, the most accurate histories, the most profound advice. But, here’s the problem: with no way to tell the difference between the wisdom and the nonsense, we’re no further ahead. Progress comes from figuring out what we should keep, and what we should discard.

Memory can be a dangerous business, but it’s also a powerful tool. If we’re not careful, we can trick ourselves, making fiction into reality, or erasing things that deserve a closer look. But it’s also the reason our fondest moments take on meaning – they are the sights, smells, and sounds that have enough significance to survive. I’ve forgotten a thousand games of cards, but I’ll never forget the way my grandfather would tell me “you’re shaking the spots off them!” when I shuffled for cribbage. The mix of memory and forgetting allows us to shape our own identities, selecting the experiences that matter and those that will fade into the background.

At this point I’ve forgotten why I ever wanted a photographic memory in the first place.

I hope you enjoy this issue on **human memory** (and forgetting), and that it brings some of your fondest moments to mind.

*Alexa Tullett and the Tullett Social Psychology Lab*

“I think it is all a matter of love; the more you love a memory the stronger and stranger it becomes.”

VLADIMIR NABOKOV // Russian-American novelist, poet, translator, and entomologist

### WORDS INSIDE

FROM “MEMORY ENCODING”  
**schema** | a pattern of thought or behavior that organizes categories of information

**neurons** | the basic working units of the brain; specialized cells designed to transmit information to other nerve cells, muscle, or gland cells

**acronyms** | abbreviations formed from the initial letters of other words and pronounced as a word (e.g. ASCII, NASA)

FROM “CAN MINDFULNESS ...”  
**efficacious** | successful in producing an intended result; effective

**proactive** | creating or controlling a situation by causing something to happen rather than responding to it after it has happened

**executive functioning** | mental skills that include working memory, flexible thinking, and self-control. We use these skills every day to learn, work, and manage daily life

**THIS ISSUE WAS CURATED** BY A FRIEND OF APAEP. GUEST CURATORS INCLUDE INSTRUCTORS, TUTORS, FRIENDS, AND LEARNERS WHO ARE PART OF THE BROADER APAEP COMMUNITY (FOR WHOM WE ARE GRATEFUL!)



## PSYCHOLOGY

# Memory Encoding

HUMAN-MEMORY.NET | From *The Human Memory* | Updated November 25, 2020

What is Memory Encoding? Memory encoding is basically learning information. It is how the information coming from our senses is changed into a form that can be stored in the brain. Encoding is the process of storing thoughts and events in short-term and long-term memory. This is the point when the information is tagged with “labels” (like the stickers on the files in a doctor’s office) so it can be found later by the brain. It is a crucial first step in creating a new memory. Memory encoding converts the thought or event into a thing that can be stored and remembered later.

For example, when we see a new object, such as a word, our eye sends a signal to the brain through the optic nerve. Then it goes through a lot of twists and turns before reaching temporal and parietal lobes. The job of these brain areas is to let the person know that this information is a word. This journey of information is just the first step. The information has to go through this process so that it can be understood in a meaningful way.

## History

History of research on memory encoding starts with the person named Hermann Ebbinghaus (1850-1909).

He was a pioneer in memory research. He studied learning and forgetting of things using himself as a subject. Ebbinghaus suggested the learning curve. He found that the new things associated with the prior knowledge were easier to recall.

During the 1900s, the research of Ivan Pavlov showed how our brains create connections between unrelated things. Frederic Bartlett gave the idea of mental schemas. He found that encoding was influenced by what we already know. Then came the Gestalt Theory which proposed that memory was heavily influenced by context.

In 1949, Donald Hebb proposed that the neurons that “fire together wire together,” which means that connections between neurons are made through repeated use. George Miller gave the idea that short-term memory is limited to seven items, plus or minus two. The model of working memory was proposed by Alan Baddeley and Graham Hitch, in 1974. This model consists of three components that each handle different types of tasks (e.g.,

memory for images, memory for sounds, and attention).

## Tips for better Encoding

Here are some tips to make your brain better at encoding.

**Mnemonics** | Mnemonics may be short acronyms of all the first letters of things in a list or a peg-word system in which items to be remembered are linked with the words that a person can easily remember. Making mnemonics may be the best strategy to remember a list of things. An example of mnemonics is “Roy G Biv”, which is used to remember the order of colors in a rainbow (red, orange, yellow, green, blue, indigo, violet). But mnemonics do not help in encoding complex information.

**Chunking** | Chunking is a strategy in which information is organized into small and meaningful chunks.

First, the information is divided into sections and then these sections are remembered as a unit. In this way, information becomes more meaningful and easier to digest. For example, people divide mobile numbers into small chunks like remembering a number as “15, 32, 454” instead of “1532454”.

**Imagination** | Imagination is linking images with words. This is a well-known strategy for the better encoding of information. Strong imagination leads to strong memory encoding. Using imagination creates long-lasting memories.

**Association** | When information is organized into groups, there is a better chance of encoding true information. Linking new information with prior knowledge helps in better encoding and long-term memory.

**Retrieval** | Retrieval is one of the best strategies to encode information into long-term memory. This strategy includes retrieving information by creating and taking a test. Creating tests allows the information to be processed at a deeper level. Retrieval is way better than just repeating something over and over.

**Spaced Learning** | Spaced learning is spreading the study sessions. Information is encoded in a better way by using this technique. An example of spaced learning is studying something in five sessions of 10 minutes instead of studying it for continuous 50 minutes. ●



YOU'RE DRIVING A CITY BUS. AT THE FIRST STOP, THREE WOMEN GET ON. AT THE SECOND STOP, ONE WOMAN GETS OFF AND A MAN GETS ON. AT THE THIRD STOP, TWO CHILDREN GET ON. THE BUS IS BLUE AND IT'S RAINING OUTSIDE IN DECEMBER. **WHAT COLOR IS THE BUS DRIVER'S HAIR?**

Brainly.in

Edited for length and clarity

## RESEARCH

# Can Mindfulness Improve Your Bad Memory?

BY JILL SUTTIE | *Greater Good Magazine* | September 17, 2018

I'm of a certain age when things seem to disappear a lot. Keys, glasses, my cell phone, a favorite sweater. I put them down somewhere, and, hours later, I can't remember where that somewhere is.

My memory — in particular, my short-term or “working” memory — is not at its peak. This is likely due in part to what researchers call “proactive interference,” where old memories get in the way of your ability to retrieve more recent information from your memory banks.

Short-term memory can be a particular challenge for older people and people suffering from mental illness. But a recent study found a simple way to potentially reduce the impact of proactive interference: mindfulness training.

Participants were randomly assigned to either a four-week online mindfulness course or a creative writing course. The mindfulness group spent two weeks learning to focus on their breath or body sensations and two weeks learning “open monitoring,” being aware of what was happening around them and gently redirecting their attention when their minds wandered. The creative writing group wrote short essays in response to photos or text, practicing two weeks of journalistic-style writing and two weeks of academic writing.

Before and after the training, participants completed a memory test: They first saw a set of letters appear on a screen and, after a few seconds' break, they saw a single letter and had to determine if it had been part of that set or not. As the task is repeated multiple times, seeing a letter in an earlier set can interfere with the ability to recall whether the letter appeared more recently, giving researchers a way to measure proactive interference. In addition, some participants were scanned via MRI before and after the training to look for changes in the volume of their hippocampus — an area of the brain associated with memory.

Results of the analyses found that the mindfulness group had significantly less proactive interference during the memory test compared to the writing group, indicating an improvement in short-term memory.

“When you try to learn something new, it's difficult to do it because you have all these past memories that interfere,” says the lead author of the study, Jonathan Greenberg. “It makes a lot of sense that mindfulness might improve that, because the tendency to attend to the present moment is a core concept of mindfulness.”

In the mindfulness group, the better people performed on the memory task, the more their hippocampus volume

increased, too. This was particularly significant, according to Greenberg. While prior research has found that mindfulness meditation improves short-term memory and that meditators have bigger hippocampi, this is the first study to link the two findings together. In other words, the improvements in interference weren't transitory, but led to actual structural differences in the brain.

“We know that mindfulness is efficacious in a lot of ways, but we don't know a lot about how it works,” Greenberg says. “It's helpful to see that changes in the brain correlate with actual changes in cognitive performance, so that the more your cognition improves, the more your hippocampus changes.”

The hippocampus growth in the mindfulness group was small, though, not enough to be significantly different from the creative writing group's. Greenberg believes this could be explained by how brief the training was, since prior research documented hippocampus growth after eight weeks rather than four.

While this study involved healthy 18 to 50 year olds, Greenberg speculates that mindfulness could be useful for treating people who may have memory problems and concurrently smaller hippocampi — for example, older adults or people suffering from depression, past childhood trauma, or post-traumatic stress disorder. And, since short-term memory is often important for other cognitive functions — including executive functioning and problem solving — he thinks his study could help explain why (according to other research) mindfulness is good for our cognitive health.

Greenberg says that all of us forget things sometimes — where we left items or why we went into a room — so reducing interference could be useful to anyone, really.

“Proactive interference is a large part of our lives and a main reason for forgetting,” he says. “Some researchers have gone as far as to say, hey, without proactive interference we would have unlimited working memory capacity.”

For someone like me — who frequently loses things and has a parent who died from dementia-related disease — the results certainly sound promising. With a little meditation, I might save a lot of time in fruitless searches for lost keys. ●



THE MORE THERE IS, THE LESS YOU SEE. **WHAT IS IT?**

riddles.tips

Edited for length and clarity



MATHEMATICS

# Sudoku

#117 PUZZLE NO. 522433

|   |   |   |   |   |   |  |   |   |
|---|---|---|---|---|---|--|---|---|
|   |   | 6 |   |   |   |  |   |   |
| 3 | 7 | 8 | 4 | 9 | 1 |  |   |   |
|   |   | 9 |   |   |   |  |   | 7 |
| 1 |   |   |   |   |   |  | 5 | 2 |
|   |   | 7 | 6 |   | 9 |  |   |   |
|   |   | 5 |   |   |   |  | 8 |   |
|   |   |   |   | 6 |   |  | 9 | 5 |
|   | 5 | 2 |   |   |   |  | 4 |   |
|   |   |   | 5 | 3 |   |  |   |   |

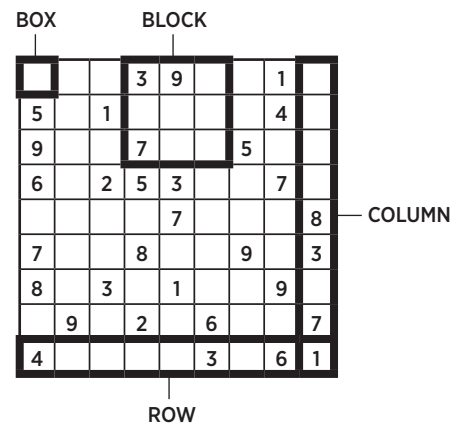
#118 PUZZLE NO. 5064883

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
|   | 1 |   | 4 |   | 5 |   |   |   |
|   |   |   |   |   |   |   |   |   |
|   |   | 9 | 1 |   | 6 |   | 3 |   |
|   |   |   |   | 7 |   | 8 |   | 3 |
|   |   |   | 2 |   |   |   | 1 |   |
|   |   | 1 |   |   | 3 | 6 |   |   |
| 8 | 7 |   |   |   |   |   | 6 |   |
| 6 |   |   |   | 3 | 4 |   |   | 5 |
|   | 4 |   |   | 5 |   |   |   |   |

©Sudoku.cool

## SUDOKU HOW-TO GUIDE

1. Each block, row, and column must contain the numbers 1-9.
2. Sudoku is a game of logic and reasoning, so you should not need to guess.
3. Don't repeat numbers within each block, row, or column.
4. Use the process of elimination to figure out the correct placement of numbers in each box.
5. The answers appear on the last page of this newsletter.



What the example will look like solved

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 8 | 3 | 9 | 5 | 7 | 1 | 6 |
| 5 | 7 | 1 | 6 | 2 | 8 | 3 | 4 | 9 |
| 9 | 3 | 6 | 7 | 4 | 1 | 5 | 8 | 2 |
| 6 | 8 | 2 | 5 | 3 | 9 | 1 | 7 | 4 |
| 3 | 5 | 9 | 1 | 7 | 4 | 6 | 2 | 8 |
| 7 | 1 | 4 | 8 | 6 | 2 | 9 | 5 | 3 |
| 8 | 6 | 3 | 4 | 1 | 7 | 2 | 9 | 5 |
| 1 | 9 | 5 | 2 | 8 | 6 | 4 | 3 | 7 |
| 4 | 2 | 7 | 9 | 5 | 3 | 8 | 6 | 1 |



“All water has a perfect memory and is forever trying to get back to where it was.”

TONI MORRISON // American novelist, essayist, book editor, and college professor

DID YOU KNOW?

**Memory relies on your brain to “fill in the gaps.”**

When a memory gets stored in your brain you retain its key features (someone’s face, what shoes they wear, how hard the wind was blowing), but most else is pretty much a blur. But when faced with a fuzzy aspect of a memory your brain tends to fill in the gaps with what it “thinks” most probably was the case.

**Memory is supercharged when new information is visual.**

If you’ve ever thought to yourself, “I’ll just wait for it to come out as a movie,” you know what I’m talking about.

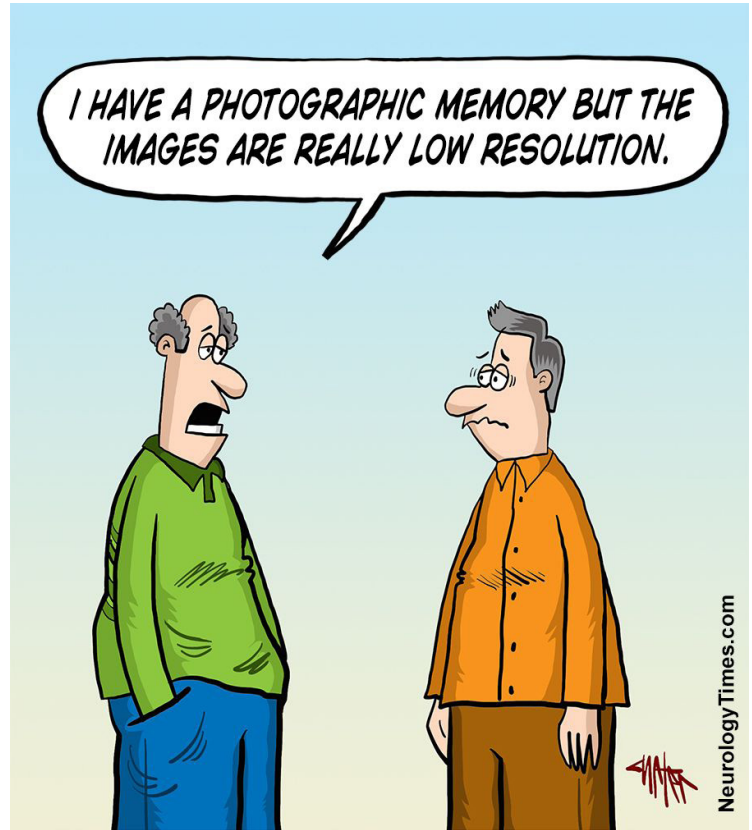
**Memory uses procrastination as an important tool for getting things done.**

How many times have you put off working on an important assignment? When we’re not actively focusing on something, it allows your subconscious to work on ideas in the background while you do other things.

**Memory is enhanced by forgetting things first.**

Conventional wisdom says that if you want to remember something, you should repeat it often, and keep it fresh in your memory. According to some research, you need to forget a new piece of information at some level before remembering it in order to make that memory robust over time.

Source: lifehack.org | Edited for length



“Life is all memory, except for the one present moment that goes by you so quickly you hardly catch it going.” TENNESSEE WILLIAMS // American playwright

**Idiom**

“To jog someone’s memory”

**Meaning** To cause or help someone to remember something

**Origin** The verb “jog” arose in the 1540’s with the meaning “to shake up or down,” perhaps altered from Middle English *shoggen* “to shake, jolt, move with a jerk” (late 14th century.), a word of uncertain origin. Meanings “touch or push slightly,” “stir up or stimulate by hint or push,” and “walk or ride with a jolting pace” all are from the 16th century. The modern sense in reference to running as training mostly dates from 1948; at first a regimen for athletes, it became a popular fad around 1967. Perhaps this sense is extended from its use in horsemanship.

The original meaning of jog makes sense in regards to the idiom: “the photograph jogged her memory,” could very sensibly understood as “the photograph stirred up her memory.”

Source: etymonline.com and merriam-webster.com | Edited for clarity



**MEMORY THRIVES ON STORYTELLING.** IN HIS 2012 BESTSELLER, *MOONWALKING WITH EINSTEIN*, JOSHUA FOER TELLS TALL TALES OF MEMORY CHAMPIONS RECALLING ENTIRE RANDOMLY SHUFFLED DECKS OF PLAYING CARDS, FROM MEMORY IN LESS THAN A MINUTE. HOW DO THEY ACCOMPLISH THESE MIRACULOUS FEATS? THEY TELL MEMORABLE STORIES TO THEMSELVES WHILE WEAVING IN WHAT THEY’RE TRYING TO REMEMBER.



**MEMORY GETS BROKEN UP IN BITS AND PIECES IN DIFFERENT PARTS OF YOUR BRAIN.** YOUR MEMORY IS LIKE A DISTRIBUTED FILING SYSTEM. SMELLS GO OVER HERE. EMOTIONAL INTENSITY GOES DOWN THERE. VISUAL INFORMATION GETS STORED HERE. AND THEN IT’S THE JOB OF THE HIPPOCAMPUS TO PULL EVERYTHING BACK TOGETHER.

ART + CULTURE

# Smell Is the Last Memory to Go

BY FATIMAH ASGHAR

on my block, a gate  
on my block, a tree smelling

of citrus & jasmine that knocks  
me back into the arms of my dead

mother. i ask Ross *how can a tree  
be both jasmine & orange*, on my block

my neighbors put up gates & stare  
don't like to share, on my block

a tree I can't see, but can smell  
a tree that can't be both but is

on my block, my mother's skirt twirls  
& all i smell is her ghost, perfume

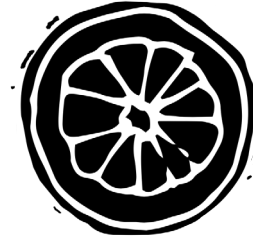
on my block, a fallen orange  
smashed into sidewalk

its blood pulped on asphalt on my  
block, Jordan hands me a jasmine

by the time i get home  
all its petals are gone

[poem selected by Cassie]

Fatimah Asghar is a Pakistani, Kashmiri, Muslim American writer. She is the author of the poetry collection *If They Come for Us* and the chapbook *After*. She is also the writer and co-creator of the Emmy-nominated *Brown Girls*, a web-series that highlights friendships between women of color. Her work has been featured on outlets such as PBS, NPR, *Time*, *Teen Vogue*, and *Huffington Post*. In 2011, she created a spoken word poetry group in Bosnia and Herzegovina called REFLEKS while serving a Fulbright fellowship, where she studied theater in post-genocidal countries. In 2017, she was listed on Forbes's 30 under 30 list.



**WRITING PROMPT**

Interestingly, research shows that there is a strong connection between memory and smell! Make a list of your favorite smells. Then write about or draw a memory for each smell.



## Word Search

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | S | S | O | E | P | F | S | S | M | A | G | E | P |
| O | E | S | A | I | E | I | T | U | A | S | N | P | U |
| S | I | H | N | O | R | C | T | R | N | E | I | A | L |
| L | E | L | P | L | F | M | N | T | E | S | L | O | P |
| N | A | S | P | S | U | G | S | I | U | G | L | R | E |
| F | R | H | E | R | M | N | R | C | H | M | E | A | D |
| U | D | R | T | O | E | S | E | O | S | E | M | N | E |
| E | G | M | A | B | S | L | S | A | I | N | S | G | S |
| U | N | E | L | H | M | T | D | T | D | E | F | E | H |
| S | R | O | S | G | A | E | H | U | M | S | N | I | O |
| H | R | S | E | I | S | J | A | S | M | I | N | E | O |
| M | I | E | M | E | H | H | L | A | G | E | O | U | J |
| S | E | E | J | N | E | N | M | A | D | J | N | S | E |
| D | N | E | F | S | D | B | I | G | L | G | I | R | P |

- JASMINE
- PULPED
- SMASED
- PETALS
- NEIGHBORS
- GHOST
- ORANGE
- CITRUS
- PERFUME
- SMELLING

## MEMORY

# The Pandemic is Messing With Your Memories

BY ROBERT ROY BRITT | Elemental.medium.com | August 18, 2020

Without realizing it, human beings have been known to make up memories. The reasons, which all existed in the “before times,” are only made worse by the many stresses of Covid-19.

Sometimes we just don’t remember events correctly, whether they occurred days or years ago. No one is immune, and studies show that false memories occur in adults of all ages, says Dr. Nancy Dennis, an associate professor of psychology at Penn State.

Imagine, Dennis suggests, having several meetings in a day and failing to remember who said what. Or believing you told your significant other you’d stock up on toilet paper and hand sanitizer, but in fact, you never mentioned it. Or thinking you’d met someone before when perhaps they just looked familiar.

“These are false memories,” she says. They’re all examples of simply remembering things wrong, and they are not the same as forgetting. “I may forget which of my colleagues had a specific great idea in the meeting we just had,” Dennis says. “But a false memory is when I think John had the idea when, in fact, Mary is the one who said it.”

Here’s a few of the reasons why recollections tend to go wrong, all of them often working together.

**Negative emotions and the power of suggestion can distort memories** | In a classic 1974 study, researchers showed people film clips of auto accidents and asked them to guess the speeds of each car. People who were asked “How fast were the cars going when they *smashed* into each other?” estimated the speeds to be higher than people who were asked the same question with the word “*hit*” instead of “*smashed*.” The lead researcher on that study was Elizabeth Loftus, PhD, now a professor of psychological science and law at the University of California, Irvine.

Loftus and other scientists have since shown how a memory can be distorted by suggestions or false information either through a conversation with someone who saw an event differently, or during an interrogation, when false memories can be implanted in an accused person or a witness.

The stress of lost jobs, lost loved ones, or the isolation of the pandemic may only increase the tendency to give in to the power of suggestion. “Life stress can hurt memory and make people more susceptible to distorted or false memories,” Loftus says.

**Your beliefs inform your memories** | People are more

likely to develop false memories if a fake news story fits with their views. In Murphy’s 2019 fake news study, people in favor of legalizing abortion were more likely to remember something false about pro-lifers, and the same bias was true for the other side.

Murphy thinks the same thing could happen among people in any highly emotional environment or election, including the 2020 U.S. presidential election or the Covid-19 pandemic. Voters are, in particular, “likely to ‘remember’ fake scandals that reflect poorly on the opposing candidate,” she says. “In countries where Covid is particularly politicized, like the U.S., I would expect ideology to impact false memory susceptibility.”

This “confirmation bias,” as it’s often called, helps create strong disagreements between people on everything from politics to religion and, yes, pandemics. And we all do it, blocking out legitimate facts that contradict our views without even realizing it, according to a brain-imaging study earlier this year in the journal *Nature Communications*. The more confident a person is in their view, the more likely their neural processing will change to “decrease sensitivity to disconfirming information,” says study leader Max Rollwage, a doctoral student at University College London’s Wellcome Centre for Human Neuroimaging.

**Our future thinking could be colored by how we remember the pandemic** | The flexibility of memory can have advantages, points out Reddan, the Stanford researcher. “Imagination can potentially distort memories and predictions of the future,” Reddan says. “If you have a memory that is no longer useful for you or is crippling you, you can use imagination to tap into it, change it, and reconsolidate it, updating the way you think about and experience something.”

We may not be able to unlearn our fear of Covid-19 — and certainly should not lose our respect for the virus — but imagination could be a useful tool to help us adapt to the stress of the pandemic, Reddan says, “to buffer the impacts of isolation.”

Meanwhile, how we remember, misremember, and imagine these pandemic times could color our future thinking considerably. Reddan imagines how we might back away from strangers not wearing masks or be more disgusted than ever by coughs and sneezes. “I think these heightened feelings of disgust and fear will stay with us for a long time,” she says, “and color even how we look back on the past, at times pre-Covid.” ●



**WHAT'S FULL OF HOLES BUT CAN STILL HOLD WATER?**

brainzilla.com

● Edited for length and clarity

LITERATURE

# The Library of Babel

WIKIPEDIA.ORG AND SHMOOP.COM

*The Library of Babel* is a short story by Argentine author and librarian Jorge Luis Borges (1899-1986).

Many of Borges' signature themes are featured in the story, including infinity, reality, labyrinths, and the relationship between God and mortals. The library in the story often reminds people of the "infinite monkey theorem," which states that a monkey hitting keys at random on a typewriter for an infinite amount of time will almost surely type any given text, such as the complete works of William Shakespeare.

### Summary of *The Library of Babel*

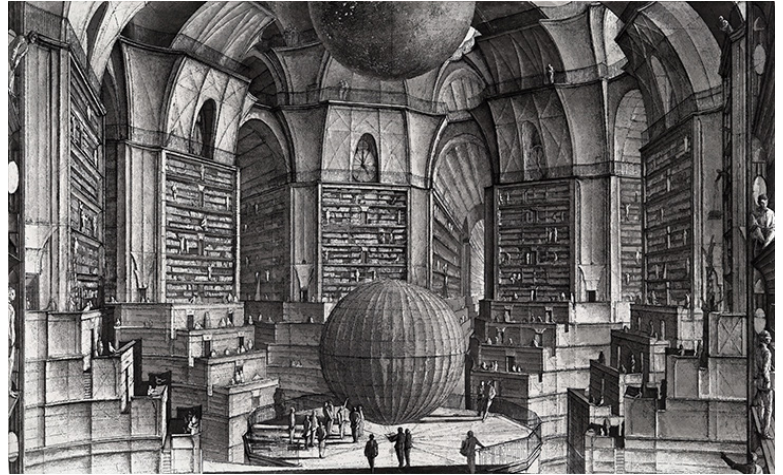
The Universe, also known as the Library, is made up of a series of identical hexagon-shaped rooms. Each room has four walls of books, tiny closet-like spaces for sleeping and using the restroom, and hallways that lead to other hexagons. The hallways contain spiral staircases, which lead up and down to other, identical levels. These hallways also each contain a mirror, which the narrator thinks of as a sign of the Library's infinite nature.

When the narrator was young, he quested in search of a book. Now he is old, and preparing to die. When he dies, someone will throw his body over the edge of a railing and it will fall for eternity.

Each wall of books in the Library contains five shelves, each holding thirty-two matching books. Each book has 410 pages, with 40 lines per page and about 80 characters per line. The cover of each book has a title, but the title has nothing to do with the contents of the book.

The narrator tells us two basic rules about the Library: it has existed forever (and therefore must have been designed by a god), and there are exactly 25 different written symbols. This second point, along with a footnote from a later editor, lets us know that we as readers are outsiders to the universe of the Library, since our world has more than 25 characters.

Most of the books in the Library don't seem to make any sense. The Library's inhabitants used to have a lot of theories about why this is — maybe the books are written in another language, they speculated, or maybe in code. Five hundred years ago, though, a man of genius was able to figure out the Library's secret. Because no two books in the Library are identical, he argued, the Library is "total" — in other words, it contains every single possible combination of the 25 written characters. This means that in all those collections of 410 pages, the Library contains

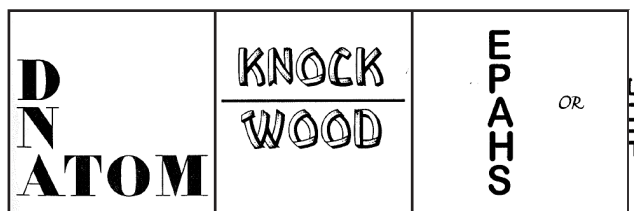


everything that can be expressed in writing, in every possible language.

At first, the reaction to this great discovery was one of optimism and celebration. The people of the Library figured that the truth was out there, and all they had to do was go find it. Men set out in search of their "Vindications," books that tell the stories of their own lives and even tell their futures. Failing to find their own Vindications, these men ended up killing each other off or going insane. Others hoped to find a book that would explain the origin of the Library and of the human race, and established an official group of "inquisitors" to do the job. After several centuries of fruitless searching, though, no one expects to find anything anymore.

The period of optimism was followed by one of despair of ever finding anything meaningful in the Library. Some people suggested they'd have better luck rolling dice and making their own sacred texts. Others, the Purifiers, thought the best course of action would be to destroy all of the meaningless books in the hopes of

**WORD PLAY** A Rebus puzzle is a picture representation of a common word or phrase. How the letters/images appear within each box will give you clues to the answer! For example, if you saw the letters "LOOK ULEAP," you could guess that the phrase is "Look before you leap." *Answers are on the last page!*





finding holy ones. But because the Library is so vast, they were unable to make a serious dent in the number of books.

The narrator writes of one lingering suspicion from that period, a godlike figure known as the Book-Man. The idea was that somewhere in the Library existed one book that could explain all of the other books – a “total book” – and that some librarian must have read it. That librarian would acquire the powers of a god. The narrator is sure that the total book must exist, and he hopes that some man has had the chance to read it.

Despite the apparent disorder of the Library, the narrator rejects the idea that any of the books within it are meaningless. There is no combination of letters, he argues, that does not hold a secret significance in some language or code explained somewhere within the Library. The very words he is writing right now, which must already exist within the Library, may have secret meanings that we’re unaware of. Are we sure we understand his language?

The human race is now on the verge of extinction, the narrator tells us, though he is sure the Library will endure for eternity. In closing, he explains how he is able to think of the Library as infinite, though it contains a finite number of books. The solution is that it must be periodic, he explains. In other words, it repeats itself: if you start walking in a straight line in any direction, you will eventually come across the same books. The repetition of the disorder of the Library creates an order – the Order, the narrator asserts, of the universe. This belief in an orderly and elegant universe gives him hope.

In a final footnote, the narrator explores an idea of Letizia Alvarez de Toledo, who turns the vast expansion of the Library inside out. The entire Library, in her view, is contained within a single volume with an infinite number of infinitely thin pages. Each page can always be split into two pages. The impossible middle page of this volume would have no back side.

**Influence on Later Writers**

Terry Pratchett uses the concept of the infinite library in his *Discworld* novels. The knowledgeable librarian is a human wizard transformed into an orangutan.

*Fone*, a short comic novel drawn by Milo Manara, features a human astronaut and his alien partner stranded on a planet named Borges Profeta. The planet is overflowed by books containing all the possible combinations of letters.

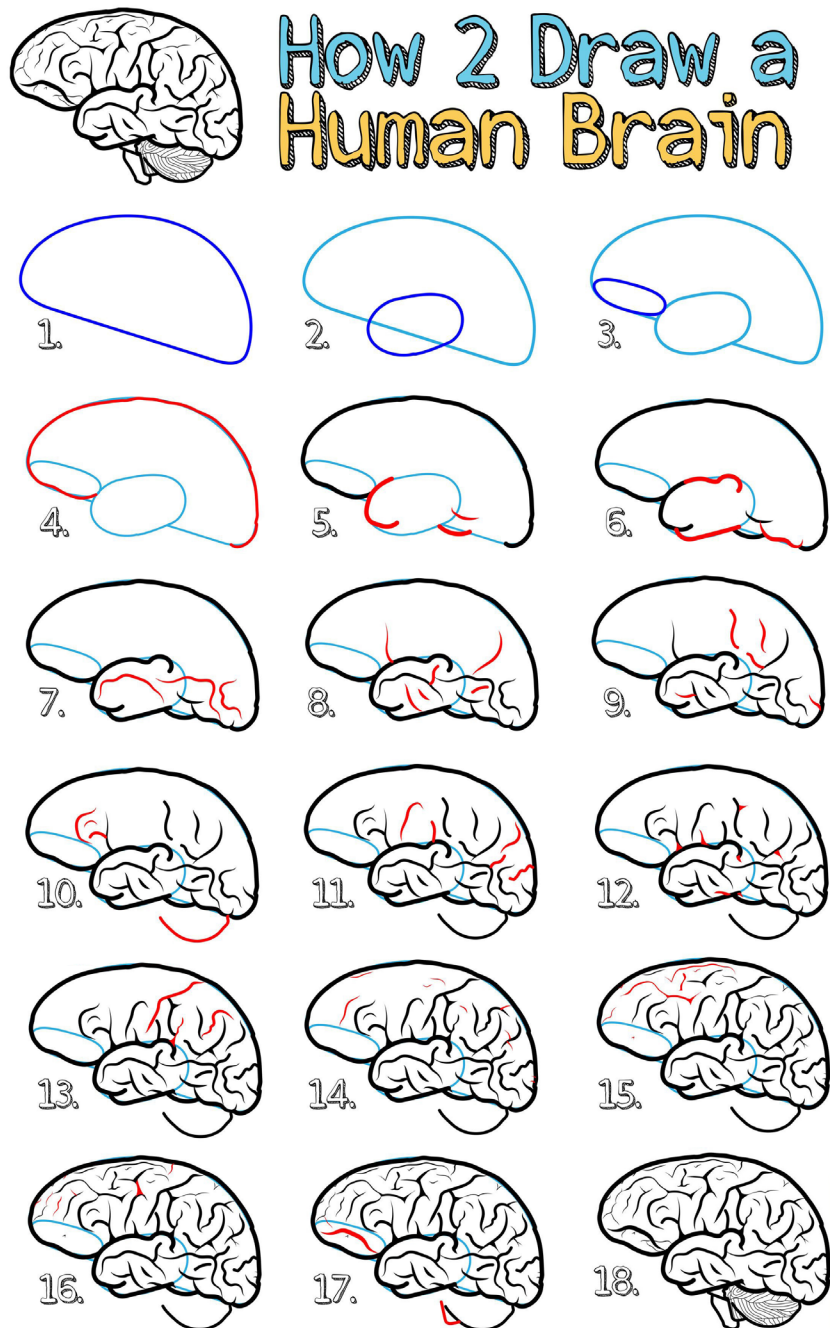
In Christopher Nolan’s film *Interstellar*, the main character, Cooper (played by Matthew McConaughey) becomes trapped in a black hole similar to the Library of Babel. Cooper’s universe is his family’s old bookshelf, extending in all directions, but at different times in the bookshelf’s history. This scene has been compared to *The Library of Babel*, and Nolan lists Borges as an artistic influence.

There is a website, called The Library of Babel, created

by Jonathan Basile, which features an online version of Borges’ library. The website generates a ‘book’ by producing every combination of 29 characters: the 26 English letters, space, comma, and period. Each book has a set of coordinates that says where it can be found in the hexagonal library (hexagon name, wall number, shelf number, and book name). The website is said to contain “all possible pages of 3200 characters, about  $10^{4677}$  books.”

Gene Wolfe’s *The Shadow of the Torturer* features an impossibly large, maze-like library, the caretaker of which is a blind man, in recognition of Borges and his work. ●

● Edited for length and clarity



RANDOM-NEST

## Memory Exercises That Actually Help You Remember More

BY DAVID K. WILLIAM | LIFEHACK.ORG | UPDATED FEBRUARY 1, 2021

Here are some simple, real-world memory exercises to sharpen your brain and improve memory.

**1. Repeat It out Loud** | In order to remember anything you have just read, heard or done, repeat it out loud. For example, repeat out loud the name of someone you've just met or read about, and you will nail the name down in your mind.

**2. Switch Hands** | If you are right-handed, try using your left hand to do things like brushing your teeth and eating. Use your non-dominant hand instead to challenge your fine-motor skills that are controlled by the nervous system and the brain.

**3. Do Math in Your Head** | Don't always rush to use a pen and paper to figure out math problems. Try to do them in your head, while walking (if possible).

**4. Practice Meditation** | Training your mind to be quiet is not always easy, but it can be done through meditation. Some of the benefits of practicing meditation include stress reduction, improved learning ability, increased focus and attention, enhanced working memory and mood, and also reversal of brain atrophy.

**5. Create New Acronyms** | Come up with your very own clever acronyms whenever you need to memorize something in a hurry. Creating original acronyms or mnemonic phrases, where you use the first letters of words within a phrase to form a name, can sharpen your brain and assist in remembering more.

**6. Tell Stories** | Telling stories stimulates the brain through recalling and recounting important details. It also helps you remember events and associate emotion with memories.

*Edited for clarity and space*



### WORDS OF ENCOURAGEMENT

Human beings are beautiful storytellers, and one thing we do all is share bits and pieces of our life story. *Where did you come from? What obstacles were in your way? What were your great successes?* Lives are powerful narratives composed of millions of ceaseless happenings, and our memories of those moments are the reason we can tell our stories. Memories are our past; some remain that we wish to forget and others we hope never disappear. By recalling the past, you learn what you did right, did wrong, and the type of person you were when you were younger. Memory breathes life into our present, too. You can compare your current self to your past self. You have an identity that was created due to all your experiences you remember as a human being. If we look close enough, we also see how memory reaches her infinite hands into the future. The person you have yet to become is intertwined with your memories, now you can compare your current self to the person you want to be. You can set yourself up to strive more, do more, learn more, love more. I'll end this section with: cherish your memories. Share your memories. Create new memories. Continue to write your story. It is something no one can ever take from you.

*Jacob*



1061 Beard-Eaves Memorial Coliseum // Auburn University, AL 36849

## Answers

SUDOKU #117

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| 2 | 1 | 6 | 3 | 7 | 5 | 9 | 8 | 4 |
| 3 | 7 | 8 | 4 | 9 | 1 | 5 | 2 | 6 |
| 5 | 4 | 9 | 2 | 8 | 6 | 1 | 3 | 7 |
| 1 | 9 | 3 | 7 | 4 | 8 | 6 | 5 | 2 |
| 8 | 2 | 7 | 6 | 5 | 9 | 4 | 1 | 3 |
| 4 | 6 | 5 | 1 | 2 | 3 | 8 | 7 | 9 |
| 7 | 3 | 1 | 8 | 6 | 4 | 2 | 9 | 5 |
| 6 | 5 | 2 | 9 | 1 | 7 | 3 | 4 | 8 |
| 9 | 8 | 4 | 5 | 3 | 2 | 7 | 6 | 1 |

SUDOKU #118

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| 3 | 1 | 7 | 4 | 8 | 5 | 2 | 9 | 6 |
| 2 | 8 | 6 | 3 | 9 | 7 | 5 | 4 | 1 |
| 4 | 5 | 9 | 1 | 2 | 6 | 7 | 3 | 8 |
| 9 | 6 | 4 | 5 | 7 | 1 | 8 | 2 | 3 |
| 5 | 3 | 8 | 2 | 6 | 9 | 4 | 1 | 7 |
| 7 | 2 | 1 | 8 | 4 | 3 | 6 | 5 | 9 |
| 8 | 7 | 5 | 9 | 1 | 2 | 3 | 6 | 4 |
| 6 | 9 | 2 | 7 | 3 | 4 | 1 | 8 | 5 |
| 1 | 4 | 3 | 6 | 5 | 8 | 9 | 7 | 2 |



### Brainteasers

**Page 2** Whatever colour your hair is. Remember, you're driving the bus!

**Page 3** Fog (or darkness!)

**Page 7** A sponge

**Page 8** Rebus Puzzle:

1. Up and at 'em
2. Knock on wood
3. Shape up or ship out

Send ideas and comments to:

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UNTIL NEXT TIME