ACE EDDLEMAN

Frequently Asked Questions About Learning & Memory

A collection of questions and answers about how your brain acquires and stores knowledge.

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Introduction

Memory and learning are subjects that are both popular and mostly misunderstood. We all have memories and we all learn in a variety of ways, yet the underlying mechanisms remain mysterious.

A few years ago, I wrote a book called *The Learning Factory* that laid out a simple, easy-to-use system for learning nearly anything. It was the culmination of years of study in these two subjects, and I've never stopped adding to my knowledge. As such, I'm in a position to clear away some of the confusion that surrounds learning and memory.

I'm regularly asked, both online (particularly on Quora) and offline, about how learning and memory work. This small book is a collection of some of the most common questions I've received, along with my answers. Some of the answers are fairly brief, others go into more detail. But the one uniting feature of them all is that I've written them specifically so a layman can understand them.

If you find this information useful, check out my other work at 52 Aces (52aces.com). And, of course, if you have any questions or comments, feel free to send me a message at 52aces.com/contact/.

Q: I have a 400-day plan to learn a complex subject. Is this doable?

The question itself is interesting in that it demonstrates a common belief among people who want to learn new things: that a mapped-out plan and a concrete timeline are enough to accomplish learning goals.

First, I'd like to introduce you to your new arch-nemesis: **the planning fallacy.** This bias - which everyone is guilty of falling for - involves being overly optimistic with time estimates for projects we take on. There are pretty much always unforeseen delays that come with projects of substance (and I'd definitely classify this as one of those projects).

So, right off the bat, I'm going to say that you're going to miss your deadline purely because of unforeseen complications in your plan. These changes could come from changing personal motivations/desires, technical difficulties and unexpected life events.

Secondly, by giving yourself this tight deadline, you're going to have an incentive to push through even when you don't understand the concepts you're working on. This is absolutely critical, and it's what causes most people to end up with sub-optimal knowledge and skills when they're learning on their own. When you're staring at your calendar, focusing on that completion date, you won't take your time to actually grasp what you're learning.

Even more important, you're not giving your brain time to build meaningful, contextual connections between concepts. Learning is very much a process of building up a library of concepts, then finding ways that those concepts relate to each other (a process known as **chunking**). It takes time for this to occur, and when you're trying to blast through all your learning materials it's far less likely to happen. Rushing through also ignores critical aspects of learning, such as **distributed practice**, **memory consolidation** and **incubation**, although each one of those could merit their own answer so I will digress for now.

Third, your ***intention*** to learn actually matters far less than you imagine. Despite what the self-help gurus say, wanting to learn something matters far less than how you actually go about it. What matters is the process you put in place that will ensure you have effective **encoding, storage and recall**, along with elaborative processes that ensure connection between what you already know and what you're learning. You can hate what you're doing and still learn efficiently, and you can also have all the best

intentions in the world and learn very little. It all comes down to *how* you handle the information.

Retention is a particularly overlooked aspect in plans like yours. It's shocking to me, but I see it all the time - everyone wants to learn, but almost nobody acknowledges the importance of retention. Again, if you don't understand how your brain stores things, you'll always end up wasting your time simply because you won't remember most of what you take in.

Allow me to suggest an alternative to your current plan: rather than focusing on *what* you're going to learn, start with *how* you're going to learn it. Take some time to figure out how learning actually works, then jump into the basics and build from there. That way, even if you change your mind about wanting to get into this particular subject, you'll have all the tools you need to learn anything else that interests you. Plus, if you ever want to come back to this subject, you'll still have all that knowledge you learned before. So there's very little risk either way.

Bottom line: Believing that an elaborate roadmap for your learning is key is just setting yourself up for failure. Focus on your learning system and your results, while maybe not as you predicted, will always be better.

Q: Is it normal to forget everything I've learned after taking my exams?

The way this question is phrased is worth examining, particularly because it's such a common question. What you should understand right from the get-go is that forgetting will always be part of learning, **but** if you immediately forget everything once you pass your exam, it's safe to say that you didn't actually *learn* very much. Instead, it sounds like you were simply cramming and memorizing in order to get a good grade.

This is part of a long-standing problem in the world of education: emphasizing memorization for the sake of passing exams. It's the exact opposite of what an education should be providing and turns learning into just another robotic algorithm in the ladder-climbing process. It isn't really your fault. The educational environment rewards this behavior and it's no surprise to see students adapting in turn.

In your specific case, you need to keep one thing in mind: **memorization is not the same thing as learning.** Learning does utilize a certain level of memorization, but committing information to memory without any kind of context or association with pre-existing knowledge is just noise taking up space in your skull.

The first part of the answer is **slow down.** Stop focusing on how many pages of information you can jam down your information processing pipe and focus on actually understanding the material in front of you. Hone your **encoding** process. Be honest with yourself when you don't "get it" - moving forward anyway is an excellent way to convince yourself that you have perfect knowledge when you don't.

Secondly, take advantage of the **spacing effect**, which dictates that you'll actually learn more effectively when you take breaks. Cramming will give you short-term memory boosts, but the information will get dropped in short order without any kind of longer-term process in place. I recommend using a program like **Anki** to create spaced repetition flashcards, which are a passive, efficient way to retain information.

Third, make an effort to **associate** what you learn with what you already know. Memory is associative by nature, and it only works effectively when you can make links between what you're taking in and what you already have in long-term memory. When you're just memorizing things, you aren't acknowledging this critical element of your memory's long-term recall abilities.

I know this answer can be difficult to take in, especially for someone like you who's clearly still in school. The educational environment in many places unreasonable demands on students in terms of time and cognitive capacity, and this answer is not going to make people like you feel better about the realities of learning. But that's just how it is: your brain needs time to process and adequately understanding what it takes in. Patience is key to knowledge, and if you aren't willing to take your time you'll never possess any.

Q: I’m a slow memorizer. How can I memorize faster?

It sounds a lot like you are confusing “memorizing” with “learning.” The two must co-exist at a certain level since you need to know certain concepts by heart to gain expertise in a domain, but memorizing a page does not indicate that you’ve actually learned anything. Ask yourself this: if you memorize a page of gibberish, did you actually accomplish anything? While that might seem like a pointless thought experiment, that’s what you’re doing if you’re just blindly memorizing.

What you need to focus on is building an internal library of ***chunks***. Chunks are singular concepts that are related to whatever it is you’re trying to learn. Without a library of chunks in memory, you’ll never be able to gain any meaningful level of expertise. Think about it this way: if you want to learn how to master complex equations in a subject like physics, you first need to know how to do simple addition.

It might seem obvious, but many people overlook this feature of learning. There’s a reason classes often have prerequisites that you’re expected to have under your belt before enrolling - you won’t be able to understand what’s being taught if you don’t.

You also need to consider how ***retention*** plays into your overall learning system. What are you doing to ensure that you remember what you want to remember? If you’re just using rote memorization every day, you’re doing it wrong. Use some sort of spaced repetition protocol (apps like **Anki** can do this for you) to take advantage of both the ***spacing effect*** and the ***testing effect***. It will take longer, but you’ll remember much, much more.

So here’s the solution to your problem: stop focusing so much on how rapidly you can memorize a page of text. It’s pointless. Instead, start small and work your way up. Read until you come across a concept you don’t understand. When this happens, stop reading the page and go look around for more information. If that concept seems too advanced for you to understand, go deeper. Keep drilling down until you grasp the absolute fundamentals of whatever it is you’re studying. Then move forward.

This will be slower at first. You will likely get frustrated by the lack of instant results. If you have an exam tomorrow, you’re already screwed. But this strategy will absolutely pay off as time goes on and your overall knowledge increases. With enough time and

practice, you'll be breezing through the most advanced topics in that domain with ease - only stopping to examine concepts at the very top of the complexity pile.

Q: What makes someone “smart”?

My preference is to stick with what people who study artificial intelligence (AI) usually view as intelligence. They’re worth listening to because they’ve been forced out of necessity to define it so they can build and recognize systems which can be classified as “intelligent.”

The most common definition goes something like this: **intelligence is the ability to navigate novel environments successfully**. An intelligent agent is viewed as an entity that can come across environments it hasn’t encountered before and still accomplish its goals. That’s a pretty solid definition in my book.

A smart person is then someone who can adapt successfully to the world around them. The most intelligent people I’ve ever met have all possessed this ability. No matter what they encounter, they find ways to adapt their thinking. They may not necessarily be extremely rich (many are not) but they are capable of thriving even in difficult situations. These sorts of people are always learning, always looking for gaps in common knowledge and generally looking at the world around them in ways other people aren’t (or are at least making an effort to do so).

Being smart does not mean that you were #1 in your class, that you had a perfect SAT score or graduated from a top school. These are all indications that you are good at following rules and jumping through hoops - not that you’re adaptive or capable of original thought.

To be clear: academic success doesn’t mean that you’re stupid. You could be very intelligent, and simply enjoyed school or saw it as a means to an end. I just want to emphasize that titles and what is traditionally viewed as “achievement” are not synonymous with intelligence. It’s an unfortunate fact of society that such things are viewed as cognitive “shortcuts” that allow us to arbitrarily decide a person’s superiority or inferiority.

Being smart also has nothing to do with ethics or morality. There are (and have been) many people who are exceedingly intelligent but entirely devoid of ethics. Likewise, there are many not-so-smart people who are kind-hearted, good people. But that’s a whole other discussion...

Q: If a mathematician gets amnesia, will they still know math?

Short answer: maybe, but probably not. Amnesia, like everything else surrounding memory, is not fully understood and there's a ton of grey areas.

There are two primary categories of amnesia: **anterograde** and **retrograde**. The first is an inability to form new memories, and the second is an inability to recall previously-held memories.

If the patient exhibits mostly anterograde amnesia, there is a good chance that they could still do math, assuming that they knew their subject extremely well.

The reason their level of expertise is important is simple: even though anterograde amnesia is primarily concerned with future memory formation, there is usually an accompanying loss of **declarative memory** (which, to put it simply, is the memory system related to knowledge of facts). But there is not normally a loss of **procedural memory**, the memory system related to motor skills.

So if they have the process of doing equations down to the point where it's essentially an automatic process, they might have a (slim) shot at maintaining their mathematical abilities. The big caveat is that math does require a great deal of factual knowledge to be done correctly, so if their declarative memory is completely shot as well (very possible) then they're probably out of luck.

Someone with retrograde amnesia is almost certainly out of luck because that store of facts is gone, and they'd have to start from scratch. If the amnesia came as a result of some kind of traumatic brain injury or disease, then they likely have lost some of their ability to learn as well.

A small glimmer of hope comes from Clive Wearing, who has the worst case of amnesia we know of. He has both types of amnesia as a result of a herpes simplex infection that attacked his central nervous system. His existence now consists of seconds-long intervals, and he regularly tells his wife about how he has just regained consciousness.

Where things get interesting is when Clive, who used to be a musicologist, musician and conductor, is given a chance to play or conduct music. Although he has zero recollection of learning how to play/conduct music, he can still do both things. This is not a unique

finding (amnesiacs have been found to retain motor skills almost across the board), but it's informative because of the severity of his case.

Q: How can I stop forgetting so much of what I learn?

It's not possible to remember *everything* you learn, your brain just isn't equipped to take on such a monumental task. What it *can* do is extract the most important, salient ideas from whatever it is you're trying to learn and place those chunks of information in your memory. What makes the difference is how you go about initiating that process.

For one, you need to understand how your brain processes and stores information. The easiest way to think about it is to view your brain as one giant "change detector" - it's always scanning its environment, trying to find things that it doesn't expect. If it interacts with something it doesn't expect to interact with, it will take note. But if something is routine, the brain basically throws it into the proverbial waste basket and moves on.

This generalization process, while frustrating in many ways (especially when you want to remember details that didn't seem important at the time), makes sense from a resource-allocation perspective. Your brain takes up around **20% of your total daily energy** and everything you do during the day contributes to that energy usage. If you had to process and store absolutely everything you saw - and recall it at will later on - your brain would quickly become overloaded and incapable of doing little things like regulating your internal organs.

The only way to really counteract it is to set yourself up with a learning environment that caters to how your brain takes information from the outside world and transfers it to your long-term memory. The exact methodology for that is very involved, so I won't go into exact details. But a good starting point is to understand a few key concepts:

- ***Spaced repetition*** is the most **efficient** way to remember things.
- Get plenty of sleep so your brain can go through the process of ***consolidation***.
- Avoid cramming, which essentially gives you a boost in memory now in exchange for a near-complete loss later on.
- Don't multitask while you're trying to learn. Listening to music, checking Facebook and playing games while studying will pretty much always distort your memories.

- Make what you want to learn vivid. Use images and sounds and associate them with concepts - bonus points if you can come up with mnemonics to help with recall.

Hopefully you've understood the lesson here: *how* you learn is more important than *what* you learn. If you go with the "common knowledge" approach to learning, you will get common (read: disappointing) results. Work on building a system that caters to how your brain learns, and you can learn just about anything.

Q: Given how memory works, how accurate are biographies and autobiographies?

That's an excellent question, and one that should be brought up more often - especially now, when people are obsessed with studying the lives of successful people.

The uncomfortable answer is: "not that accurate," especially when it comes to autobiographies. Even if someone sits down with an honest intention to write the most brutally uncompromising autobiography possible, standard human faults would intervene.

Memories are, in many ways, fiction. Every time you put a memory into your brain, you're putting that information through a variety of cognitive processes that inevitably distort it. The most prominent (but not exclusive) factors are going to be strong emotions, biases and pre-existing knowledge.

If that's not bad enough, memory recall dilutes the information even further. Your brain starts by taking this tainted chunk of memory, then adds whole new layer of processing in order to bring it into your current line of thinking. As it's doing this, it's trying to distinguish the information from other bits, and this often means that similar information gets added on, even if it wasn't there to begin with. Then the memory gets hit with your current emotional state and biases, which may or may not be similar to what they were at the time of encoding.

But let's assume that we have a hypothetical person who can ignore those factors and have nothing but facts in front of them. Even then, the question of circumstances comes up. The stories we tell ourselves about why we're *here* and not *there* are based on incomplete information about the complex and ever-changing world we live in. Even if you have all the information possible about yourself, you'd be missing out on a large part of what caused events around you to transpire. It's simply not possible to take into account all of the factors that shape you into who you are.

The worst is when a business leader writes an autobiography (although it's usually a ghost writer doing the actual writing). They love to develop all kinds of fables about themselves and attribute their success to their habit of waking up at 4am, or their lucky rabbit's foot, or their practice of transcendental meditation. It's all nothing short of ridiculous, because even extremely successful people still suffer from the same problems that I've described above. What's worse is that they often have people reinforcing the

story they've been building for a long time, and get locked into confidently thinking they have the whole success equation figured out.

Biographies are a little better in the sense that it's a third party building a picture using (hopefully) external sources. There's less of a reliance on the subject's opinions about how their life unfolded, and a biographer can shoot down certain stories if they aren't backed up by verifiable evidence.

Yet biographies, too, can be problematic. A highly objective biographer is still going to, in some ways, insert their own ideas about how a person's life unfolded. They're also likely going to construct a cause-and-effect story without having access to all the information that would be needed to make it truly accurate.

At the end of the day, you should treat biographies and autobiographies as approximations. Autobiographies in particular should be viewed with some suspicion, particularly if the person writing it is attempting to create a general framework for other people to follow. I can pretty much guarantee that they have no idea why certain things worked for them, no matter how introspective they might try (or appear) to be. If you want to know about someone's life and are willing to be skeptical, it's probably better to stick with biographies.

Bonus George Orwell quote: *"Autobiography is not to be trusted unless it reveals something disgraceful."*

Q: Why can’t I memorize my dreams?

The big problem here is that we still have a very long way to go when it comes to understanding sleep in general. For example, despite decades of study, we *still don't even know why we sleep!*

There are a variety of competing hypotheses, yet nobody has been able to create anything resembling a total model of what it is that forces nearly all living things to sleep. Even fruit flies need sleep - we just don't know why.

Compounding this is the fact that we really, *really* don't understand dreams. Some evidence points to dreams being a sort of cleanup process in which our minds collate and consolidate our memories from the previous day. But again, nothing has been verified in what could be considered a scientifically rigorous manner. This is one of the many reasons why you shouldn't listen to people who claim to be experts in dream interpretation.

Making this even more difficult is that we don't fully understand memory, either. It's not a stretch to say that we have more knowledge surrounding memory than sleep, but we still have quite a ways to go before we can claim any sort of mastery there.

With all of that in mind, I'd say you shouldn't worry too much about not being able to memorize your dreams. Nobody has a good idea about what they're there for anyway, so I'm not sure what the value would be to begin with.

Q: Is memory trainable?

Yes and no. It really depends on what type of memory we're talking about, as “memory” is not a single construct. Let's break down the memory registers so we can get a better understanding of what I'm talking about.

Although we don't have memory entirely figured out, most researchers like to use a high-level model made up of *long-term memory* and *working memory*, along with a few other less significant registers that aren’t relevant to your question.

Long-term memory is a storage medium that holds everything you "know" and is what most people are talking about when they bring up the concept of "memory." This register is extremely big (it has a nearly infinite storage capacity) and memories that live there can exist on an essentially permanent basis.

You can do all sorts of things to optimize the flow of information into long-term memory, with the most efficient method being spaced-repetition flashcards (I personally use **Anki**). In other words, you can store huge amounts of information in your head and utilize programs like Anki to ensure that you memorize them. Some people also use mnemonics, but that's a whole other discussion.

Unfortunately, we run into a big problem when we start to look at working memory. This is truly sad because working memory isn't just some short-term register, it's considered the seat of your intelligence. Working memory capacity is widely viewed one of the single most important aspects of cognitive ability, and it is (as far as researchers can tell) determined by genetics.

There are “brain games” like N-back testing and Lumosity that exist because some people believe they can train their working memories, but the evidence just isn't there. You have a fixed capacity for working memory, and, even worse, the speed at which you can utilize working memory degrades rapidly as you get older (with a peak somewhere in the mid-20s). You still retain whatever capacity you were born with, you just can't think as quickly.

In contrast, long-term memory remains highly intact until very late in life.

So when it comes to memory, you should focus on optimizing your long-term memory as much as you can. Building up large **schemas** (networks of ideas, which are in turn built out of **chunks**) in your brain will take some time (and the older you get, the slower the process is), but you can become extremely knowledgable if you keep adding

information to long-term memory. This is true regardless of your inborn working memory capacity.

Q: I want to learn everything. How do I prioritize?

The best answer here is to *just choose something and run with it*. The impulse to take a deep dive into everything isn't possible from a neurological perspective (you need time and energy to build schemas for any one subject) and it comes across as more than a little naive.

For example, programming might look endlessly fascinating to you now, but if you got good enough at it to get a job you might find that you hate it (happens more than you might think).

Rather than sitting on your hands waiting for an "optimal" path, the best idea here is to just pick something you're interested in and give it a shot. Your idealistic perspective of it will only get any basis in reality when you gather some kind of experience with it. As an added bonus, once you start actually getting your hands dirty, you'll start to get a clearer picture of where to go next.

Perhaps you start learning a new language and fall so in love with it that you move to the country of origin and become a local. Maybe you try your hand at rebuilding car engines and after a week say "to hell with this, I'm never even looking at a V8 again." No matter what, your experiences (both good and bad) will give you clues about what sorts of things you find truly satisfying. That's the only way you can figure out what the "best" path is for you.

So again, just dive into something. Don't worry about if it's the "best" way or not - you can't possibly know that, and time you spend worrying about it is time wasted.

Q: How can I give myself hyperthymesia?

Note: Hyperthymesia, aka Superior Autobiographical Memory, is the ability to recall your own life with a very high degree of accuracy. It's extremely rare and not well understood.

Short answer: we don't fully understand hyperthymesia, you probably can't, and you wouldn't want to anyway.

The intuitive appeal of having an insanely sharp memory is clearly illustrated by the number of people who keep asking questions about photographic memory in all its various forms. Who wouldn't want to be able to rapidly recall every last detail of every memory you've ever had, am I right?

Actually, no. First of all, consider this: the brain has limited resources, so any time one aspect of its functionality gets boosted, another has to suffer in some way. An extreme example is Kim Peek. He was the inspiration for Dustin Hoffman's character in *Rain Man*, and he had some incredible abilities.

He read thousands of books and could accurately recall details from all of them. His method was impressive, and generally involved him reading two pages at a time at an extremely fast pace. Unfortunately for Kim, he was also so severely handicapped in other cognitive areas that he was never able to take care of himself. Even basic conversations were a challenge for him, something that I don't think you'd be willing to trade for world-class memory abilities.

Likewise, in people with hyperthymesia, the benefits are often outweighed by the downsides. One of the most important functions of memory is the ability to generalize and remove irrelevant detail. You can't remember everything you've ever done because most of it wouldn't be worth remembering - a fact that your brain conveniently handles by forgetting routine information.

People with hyperthymesia are stuck with vivid pictures of everything they've ever done. Consider how that would relate to the less pleasant aspects of life, such as your trips to the bathroom, heartbreak, death of loved ones, and so on.

From a less emotional perspective, having this ability does not translate into additional intelligence. There is evidence that people with hyperthymesia have memories that are otherwise normal, and in some cases decreased cognitive abilities have been observed.

For example, the first known patient with hyperthymesia (known simply as "AJ") had only average grades in school. Her memory for her own life was world-class, but that ability did not transfer to other areas of her life.

Secondly, we don't really understand everything about hyperthymesia. Some researchers believe it's an innate memory ability, while others are skeptical and propose that it's a set of developed skills. How someone else could develop those skills has yet to be answered (along with whether it's even a set of skills to begin with). My personal suspicion is that it's tied to biological factors and not something you can generate on your own.

In conclusion, you should be happy that you don't have hyperthymesia. Consider the downsides and feel overwhelming gratitude that you have a normal, functioning memory.

Q: Do all geniuses have excellent memories?

First, I need to quality everything I'm about to say: *As someone who is **not** a genius, I can't say I have any firsthand experience with this topic. This is all based solely on my own research in regards to memory.*

Let's consider what a *genius* really is. The way that term is used nowadays is pretty similar to *awesome*, in that it's completely overkilled and means something far less substantial than it should. Just as *awesome* should be reserved for things like looking at the Milky Way and attempting to grasp its size, *genius* should be used to describe people who introduce entirely (or mostly) novel concepts into the world.

If you can play chess at a world class level, you aren't a genius. However, if you found a way to beat grandmasters at chess that's never been seen before, you might be.

Being good at playing a guitar doesn't make you a genius, but you could argue that Jimi Hendrix was because he made sounds with that instrument that had never been heard before.

So, going off of that definition of genius, I would say that, to a certain degree, yes, geniuses generally do have good memories. But not just memories in general - there are plenty of geniuses who could be classified as "absent-minded" or "forgetful." Instead, what would make the most difference is the library of factual knowledge that the genius had at their disposal. This is held in a register known as *long-term memory*.

Albert Einstein is actually a great example. Although he advised not memorizing things, he likely did not understand just how much he had memorized in the course of his studies. His deep understanding of math and physics, which was built upon a foundation of highly-connected bits of factual knowledge, allowed him to come up with concepts like relativity.

Factual knowledge precedes the ability to come up with creative solutions, whether Einstein wanted to admit it or not. You just can't make the proper connections between concepts and spot where something doesn't fit or is missing without it.

Becoming a genius is *not just* about developing your long-term memory. It's a prerequisite in some ways, but it's not everything. There are many other factors

involved, some of which are genetic (such as working memory capacity, which in many ways dictates how quickly you can think).

Q: How do I develop a photographic memory?

Short answer: you can't develop a photographic memory. Photographic (eidetic) memory is a myth.

The reasons are a bit complicated, but I'll do my best to summarize the relevant points.

First of all, the way your brain processes information is not similar to the way you probably think it does. **Your brain isn't a hard drive, and your eyes are not cameras**. You aren't taking in your surroundings perfectly and then "losing" that information. To understand why, you need to know a little bit about how the brain does its processing.

Your brain relies on something called ***salience*** to determine what is worth remembering and what isn't. Can you remember what you had for breakfast 3 weeks ago? Probably not, but if you can it's almost certainly because something unusual happened. For example, if it was your birthday and you went out for an expensive brunch, that would be easier to remember.

But remembering the mundane things that happen to you every day is not going to provide you with any kind of benefit, so your brain tosses things out that it doesn't view as unique. It's actually a good thing - you don't overload your memory with irrelevant details, and you can focus on what's important in your environment.

Secondly, memories are really just networks of neurons firing in specific patterns. Whenever you think about a past event, you're using the same neurons that were fired when you experienced it for the first time. This process is often referred to with the convenient phrase "**neurons that fire together, wire together.**"

The problem with this mechanism is that your neuronal networks are constantly being modified and rearranged due to experience and a variety of other factors. Because of this, anything that might even slightly related to that memory has the potential to change whatever it is you're recalling. In many ways, recalling a memory is rewriting it. This might be subtle, but in many cases this mechanism of memory results in what is called **confabulation**. Confabulation refers to the way that memories can be entirely (unintentionally) fabricated.

Nobody can escape these mechanisms because, as far as researchers can tell, everyone's brain works this way to one degree or another. There are certainly people with better memories than others, but nobody has a photographic memory.

Q: How can I stop forgetting everyday things?

The best way to remember everyday tasks or items is to externalize the information. In other words, **don't use your memory at all**.

Your brain is already overloaded with information on a regular basis, especially if you're a "multi-tasker" who is constantly checking email, Facebook, etc. Every time you need to search around for something or switch tasks, you're burning up a little bit of the glucose that powers your brain. Do that enough, and your energy (and, as a result, willpower) will become diminished very quickly.

Rather than create more a more crowded mental environment, **organize your surroundings in a way that doesn't require thinking**. This will save you oodles of precious mental energy and allow you to focus on more important things.

For example, I used to constantly lose my house keys. They'd always end up in the pocket of a pair of pants, or fall into a couch cushion. It used to drive me nuts - and it also made me late on more than a few occasions as I tried to find them when going out the door. Doing this burned up precious mental fuel and made me far more cantankerous than normal.

Solving this problem was incredibly easy: I placed a cup by my front door and began placing everything I'd need outside of the house into it. This meant keys, sunglasses and wallet. I don't need these things while I'm in the house, and they're placed in such a way that they're easily accessible when i will need them.

Consistently placing these things into this specific place allowed me stop thinking about where I put my keys. Now I know exactly where my keys are at all times. As a result, I don't have to waste any mental space worrying about where I put them.

Q: Why do I have such a bad memory?

Your memory isn't actually bad, it's just underutilized!

Although there are other possible explanations for poor memory function (such as brain disease), the most likely culprit is actually one of strategy. Your brain has been trained by evolutionary processes to filter out information that doesn't, for whatever reason, hold our attention. What that means in practical terms is simple: if something isn't classified as unusual (the term researchers use is ***salience***), you need to either put effort into remembering it or it will be lost.

A common example is the way we're all capable of forgetting the names of people we've met. If you meet some guy named John Smith and he doesn't stand out in any way to you, there is a very good chance that you're going to forget his name. What would prevent you forgetting is making an effort to remember it, which most people don't bother with.

One method I like to use is to create a simple image mnemonic for people I meet. For example, I met someone named Logan and he happened to have big sideburns - just like the Marvel character Wolverine, whose "real" name is also Logan. Even though I haven't seen Logan in years and never really had any significant contact with him after we met, I can still remember his name and face. It's amazing what a little effort can accomplish!

Your memory is actually far more powerful, flexible and large than you can possibly imagine. The problem is that most people aren't educated in how it functions, so they just assume that memory failures are the result of a "bad" memory. Fortunately, that's not normally the case.

If you're willing to take the time to learn some basic strategies (like the one I outlined above), then I'm confident that you'll surprise yourself with how well it actually functions.

Thanks for reading! If you enjoyed this, check out my other work on 52aces.com.

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