THINK AGAIN: MEMORY IN THE AI AGE

CLOSING THE GAP BETWEEN WHAT WE KNOW AND WHAT WE *THINK* WE KNOW.

Throughout history, new technologies have sparked debates about what we lose in the face of what we gain. When digital calculators first emerged, our capacity for calculation skyrocketed, but people worried about our ability to do arithmetic. Spell-check saved many from embarrassing mistakes, yet some feared it would hurt our spelling skills. And while search engines made information easier to access, others worried people would abandon public libraries and encyclopedias as a result.

Now, similar concerns persist with the rapid integration of Generative AI: how is this tool affecting the continuity of human knowledge and skills? While some worries seem superfluous, integrating new technologies into our lives has real effects, both intended and unintended. Neuroscience shows that the constant flow of information changes our brains, so we should expect GenAI to do the same. The question, then, isn't how to stop it from happening but how to stay aware and avoid pitfalls. After all, we've adapted to disruptive technologies before—like the internet and smartphones. Now, we can learn from those experiences to use GenAI in a smarter way.

To shape our relationship with GenAI, we can draw **valuable lessons from past technological shifts**.

DISCOVERING DIGITAL AMNESIA

In 2011, research found that using search engines can affect memory. Specifically, researchers discovered that searching online can spark "digital amnesia"—our tendency to offload memory to the internet. Their experiments uncovered surprising insights and several important takeaways:

- If we expect a digital archive to remember for us, we make less of an effort to encode information in our memory.
- Searching online—not just reading—creates an illusion of knowledge, as being in "search mode" gives users a false sense of mastery.
- Overconfidence in future performance suggests search engine use can inflate our sense of both domain knowledge and overall ability.

With search engines always at our fingertips, we can easily conflate access to information with actual knowledge and memory—blurring the lines between what we know and what we *think* we know.

KORN FERRY

A RECIPE FOR FLUENCY

Normally, it's obvious to us when we don't know something. We identify the knowledge gap and put effort into filling it. But search engines minimize this effort, and that can trick us into thinking we had the answer *already* in our heads. Search's quick, rewarding feedback seems to be the critical factor driving this illusion.

Cognitive scientists call this effect "fluency," consisting of three key ingredients:

- **Speed:** Because the information appears almost immediately, we may not register that we've outsourced the knowledge. A quick, almost effortless online search creates a false sense of mastery, while slower retrieval reminds us we're using an external tool.
- **Ease:** The interface between internal thought and external information is nearly seamless with online search. Searching Google feels *almost* like reaching into our own memory—
- it's fast and provides answers with minimal effort or obvious external cues.
- **Format:** Studies illustrate the impact of using different search engines. Even if they provide the same answers, formats with more context and visual source cues help users remember where the information came from.

DIGITAL AMNESIA MEETS GENAI

More than a simple internet search, generative AI compiles and creates detailed information at lightning speed. It's everywhere—integrated into search engines, email software, video conferencing platforms, and it's designed to mirror our languages and thought processes.

Emerging research on GenAI's impact on cognitive processes reveals similar effects to those of using search engines. A recent study found differences in brain activity between participants who used GenAI tools for work generation and those who only used their brains. Though AI users believed they were actively engaging their brains, they exhibited weaker neural connectivity and reduced overall cognitive activity compared to "brain-only" participants, who showed stronger, more distributed networks linked to creative ideation, memory load, and semantic processing.

What's more, participants who used external GenAI platforms recalled less of their own work later on than those who didn't. In fact, researchers suggest that relying on AI and other discovery tools may disrupt the consolidation of declarative and procedural memory by bypassing processes like retrieval, error correction, and schema-building—all essential for expertise, critical thinking, and long-term retention.

GenAI's Impact on Learning

Understandably, this digital amnesia phenomenon sparks concerns that constant access to GenAI tools may make us forgetful or overly reliant on tech. Despite early debate, recent research largely supports that easy access to information can alter learning and memory, impacting both formal and informal education.

When we encounter new information, the brain engages in a cost–benefit decision: if knowledge is instantly available online, the mind may choose not to store it deeply. Instead of remembering the content, we remember the experience of finding it. Search engines have become massive external me

memory banks, prompting our brains to offload more. As a result, the easy retrieval of information could discourage deep learning and create a false sense of understanding, masking real learning gaps.

Still, research paints a more nuanced picture than the doom and gloom—or sunshine and roses—associated with GenAI use. Some recent studies have indeed found that AI tools improved performance during active use, but concerns remain about skill and knowledge retention after access is removed. Other findings suggest that additional concrete factors contribute to these effects. Specifically, younger participants showed more pronounced patterns of offloading cognitive processes onto GenAI, whereas higher education levels correlated with stronger critical thinking, even when using the tool.

While GenAI can affect our brains, its impact isn't fixed—some behaviors can buffer against digital amnesia. A recent study suggests that *how* people use GenAI affects their cognitive processes more than whether they use it at all. Participants who used LLMs *in place of* traditional learning could explore more topics but developed a shallower understanding of the material. However, those who used LLMs *alongside* traditional methods gained a deeper understanding of the content, though they delved into fewer topics. Other studies found that while the intrinsic motivation to learn was similar between GenAI users and non-users, their learning habits and strategies differed significantly. Ultimately, the way we engage with AI determines whether it supports or hinders our cognitive growth.

GENAI STRATEGIES TO STRENGTHEN OUR BRAINS

If using GenAI and search engines can impair memory while quietly—and erroneously—inflating our confidence, we need to be aware of this sobering outcome.

But this is not a harbinger of AI abandonment. Rather, the risk of digital amnesia highlights the need for metacognitive awareness—knowing what you understand, what you don't, and monitoring how you learn. If people conflate finding answers online with engaging in deep learning, they may overestimate their capabilities—and be underprepared when they're put on the spot.

As research shows, if we use GenAI meaningfully and alongside our brains, we can improve our memory and assess the strengths—and limits—of our knowledge. Here are three ways how:

1. Use AI to interrogate your own knowledge.

Instead of treating GenAI as a shortcut to answers, use it as a tool to investigate what you already know. Try explaining a concept to a GenAI tool and ask it to critique your explanation, pointing out gaps. When you use GenAI as a sounding board rather than a crutch, you're more likely to internalize information, deepen your understanding, build durable knowledge, and improve retention. For example, you can also ask AI to simulate a Socratic dialogue, prompting you with follow-up questions that challenge your assumptions and force you to clarify your reasoning. This reflective process mirrors the benefits of teaching others, which is known to enhance mastery.

Try this prompt

"Here's how I understand [insert topic]. Can you evaluate my explanation, point out any inaccuracies, and ask me questions that would help me deepen my understanding?"

2. Answer questions yourself before going online.

A 2021 study found that students who attempted to answer a question on their own first—even incorrectly—learned and remembered the solution better than those who Googled right away. Consistent with decades-old findings, the act of trying first provided a mental framework that helped with storing new information. Still, about 80% of participants preferred to search first, showing a natural inclination to lean on external resources. To counter this tendency, set a short "think time" rule—even 60 seconds of effort before searching can make a measurable difference. Over time, this habit can train your brain to rely more on internal recall and less on digital scaffolding.

Try this prompt

"Before you give me the answer, I'm going to try to explain or solve this myself: [insert your attempt]. Afterward, can you compare my response to the correct answer and explain where I went wrong or right?"

3. Double-click on your knowledge.

Different formats can create more fluency effects than others. Given this, it's worth digging deeper when using GenAI or search engines. Go to the source and get into the weeds. Not only can this activity mitigate AI hallucination, but it may also reduce the effect of digital amnesia. When you engage with primary sources or more detailed explanations, you're forced to process information more actively, which strengthens memory encoding. Think of it like zooming in on a map—each layer of detail helps you build a more accurate mental model of the terrain.

Try this prompt

"I read a summary of [insert topic], but I want to go deeper. Can you help me find and explore the original sources or more detailed explanations, and highlight any nuances or complexities I might miss at a surface level?"

OLD LESSONS FOR NEW TOOLS

Uncovering potential pitfalls doesn't require us to abandon search engines or GenAI. Their ubiquity and utility make that impractical and unnecessary. But we do need to use technology more critically—and be mindful of our digital overconfidence. Cyberspace is a powerful extension of human cognition, but without metacognitive checks, we risk mistaking what we find with what we know. Digital literacy means we use the internet to deepen our knowledge, not just stimulate it.

To shape our relationship with GenAI, we can draw valuable lessons from past technological shifts. History doesn't just repeat; it teaches, guiding how we operate in the future. The opportunity to learn is ours—if we remember to listen.

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