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In an age of digital media bombardment, many believe our brains are finding it harder to maintain focus. But are they? Tom Faber asks the scientists



The battle begins every Sunday at 9am. I wake up, unravel myself from my nest of sheets, and reach over, past my charging phone, to the book on my bedside table. Reading first thing on a weekend morning – a little treat, just for me. I begin to read. Sometimes, I make it through a couple of pages; other times, not even a paragraph, before I hear the siren calling. This captivating song is coming from my phone. It’s not vibrating or lighting up with notifications; I made sure it was set to “do not disturb”. And yet, inert and unlit on my bedside table, I still feel its dark screen calling to me.

“Pick me up,” it purrs. “I’ve got so much to show you. Why struggle reading those boring words when you could be flicking through Instagram stories, checking your messages, skim-reading a dozen articles online? I am the path of least resistance to stimulation and entertainment. All you have to do is pick me up.”

At first, I resist. I wrench my attention back to my book. I force myself to concentrate. I tuck my phone under the quilt and find that this temporarily relieves the tension. But, before long, I hear it again. I feel a pressure building inside me. Sometimes, I bargain with myself: OK, at the end of the chapter, I can reward myself by looking at my phone for a few minutes. It’s pointless. I give up. I pick up my phone. And do you know what of value it actually has to show me, 99 times out of 100? Absolutely nothing.

It’s the same struggle every weekend. Reading used to be fun, but now it mostly reminds me of my own deficiencies – both behavioural and, somehow, moral. Why can’t I enjoy reading the way I used to? Have I changed, degraded in some way? And, if so, who did this to me?

I know I’m not the only one who’s worried about their inability to pay attention. When I discuss this with friends and colleagues, they respond with a knowing, exasperated look. It’s not just reading, either. We’re struggling to finish a work email without clicking away to another tab. To watch a film without checking our phones.

Diagnoses for attention deficit hyperactivity disorders are on the rise. In a 2021 study of more than 2,000 UK adults, almost half said they feel their attention span is shorter than it used to be. My cousin, who’s 20, told me that his summer project was to train himself to be able to focus on entire 10-minute YouTube videos, since his attention span is used to 10-second TikToks.

There is a commonly understood narrative as to what is happening and why. It has been expounded in books over recent years such as *Stolen* Focus by Johann Hari and *The Sirens’ Call* by Chris Hayes. The broad idea is that our attention spans are deteriorating, and the main reason is ubiquitous digital media, which is precision engineered to be addictive, with smartphones and social media being the biggest culprits.

This narrative feels true to me. And if it is, I figured that it should be simple enough to find science that backs it up. But that’s where I encountered an unexpected hurdle. When I went out to speak with academics to try to better understand how the modern technological era is shaping human attention, I encountered a field of thought that was far more slippery than I’d anticipated.

It turned out that various academic disciplines – from neuroscience to philosophy, history to economics – all claim attention as a core subject, but they often mean something slightly different by the term. I just wanted to find out why I’m struggling to focus on reading my book, but I found myself enmeshed in sweeping discussions about everything that’s wrong with the world and the fundamental search for meaning in life.

Pretty much everyone agrees on one thing: the public feels there is an urgent crisis going on. Perhaps the defining crisis of our age. But what is the nature of this crisis? And what can we do about it?

I started with a simple question: is our ability to pay attention changing due to modern technology – have our phones changed our brains? It turned out to be not so simple. In order to measure attention, you first have to define it. Gloria Mark, a psychologist and professor emerita of informatics at University of California, Irvine, who wrote the 2023 book *Attention Span*, references the work of “father of psychology”, William James – brother of the novelist Henry – who gave one of psychology’s foundational accounts of attention in 1890.

“It’s basically what we choose to have enter our conscious minds,” she says. “There are so many things in the environment we can focus on, and we select some things to allow entry into our minds.”

There are various ways to categorise types of attention, but it’s generally understood that there are things you choose to focus on voluntarily, such as me reading my book, and other things in your environment that automatically grab your attention, like if my phone started to ring while I was reading.

One influential model for understanding attention is in terms of resource allocation. You have limited neural energy for brain processing, and focusing your attention only on what is relevant allows you to spend it efficiently. Mark uses the image of each person’s “tank of attentional resources”, and says that, if you get a good night’s sleep, you start your day with a full tank. But as you use your attention, or are multitasking, it drains throughout the day and it becomes harder to focus.

This image also reveals that the attention crisis is not just related to our overstimulating external world, but also that how much we have in the tank to begin with can vary, depending on factors such as sleep and stress levels (which may themselves be affected by tech use).

So what can we say for sure about how our attention has changed? Mark measured how long people stay focused on a screen activity before switching, such as how long they spend writing a document before clicking away to check their email. While in 2004 she found that people focused on a screen for an average of two and a half minutes before switching, in more recent studies, she reports an average of just 47 seconds. This indicates that our attention *has* become more fragmented. She adds that some studies have shown that, when people switch between tasks, they take longer to accomplish each task, and are more likely to make errors.

Interestingly, however, a 2024 meta-analysis of results from controlled tests in a laboratory performed by more than 21,000 participants showed no evidence to suggest that people have become less able to concentrate. “There is currently little evidence that there has been a wholesale decline in people’s underlying capacity for sustained attention,” says Michael Esterman, associate professor at Boston University.

Mark says: “The laboratory shows that, yes, we have the potential to be able to perform. That has not changed. But what has changed is our environment.” This offers hope: perhaps, if we shut down the distractions, we can regain our focus.

In a paper from last year, participants had their mobile internet blocked for two weeks and subsequently performed better on sustained attention tests. Esterman, one of the paper’s co-authors, says this indicates that we may reclaim our attention. “Changing the environment for only two weeks was sufficient to improve objectively measured sustained attention. It suggests we are not necessarily dealing with some permanent loss of attentional ability.”

But it’s easier to answer questions about changes in our digital environment than it is about the nature of the brain. I wanted to understand how cognitive scientists see the question of attention. Nilli Lavie, a professor of psychology and brain sciences, who leads the Attention and Cognitive Control group at University College London, tells me that “we don’t have a time scale for the brain to have changed on an evolutionary level. We are working with the same brains that our grandparents had, and their parents before them.”

However, she says, our brains do have plasticity, which is “the ability to expand and shrink in particular regions according to the level of usage of those regions”. There is, for example, evidence that licensed London taxi drivers, who have to use their navigation skills extensively, have higher grey matter volume in part of their hippocampus.

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I ask Lavie if somebody using their smartphone for six hours a day – their attention flitting between different information sources – may lose their ability to concentrate, and she says that it *is* possible. The principle of brain plasticity, she adds, is: "Use it or lose it." It may be unproven for now, says Lavie, but "it's very plausible that there has been a genuine effect of loss of volume in the area of the brain that allows you to control attention".



The science was less conclusive than I was hoping for. Perhaps I could, at least, get some good information on why it's so hard to resist picking up my phone when I'm trying to read my book.

2.5 minutes

The average amount of time for which people focused on a screen before switching to something else in a study conducted in 2004

"The phone is a cue," says Mark. "The more we pick it up and swipe it open, the stronger the link between the cue and the reward we get from picking up our phone becomes. The reward is we're getting a laugh, satisfying curiosity or discovering something new. So it becomes harder and harder to resist."

The brain reward systems activate for novelty – something that phones offer in abundance. And while I already know what the book has to offer me, the phone tempts me with a vast possibility space of potentially exciting stimuli, from a breaking news update to a message from a cute guy on a dating app. The fact that it only rarely delivers is easily forgotten.

Mark's research also highlights that people are not always interrupted by flashing lights and notifications: they just as often interrupt themselves. My circuits seem to have been rewired to associate the device with quick satisfaction, and it's near impossible to resist. Who is to blame for this?

By now, the attention economy is a familiar part of daily digital life. We have long thought about attention in financial terms; after all, the most common verb associated with "attention" is "pay". Modern tech platforms are calibrated to harvest human attention, which they can translate into profit via ads and spending on their platforms.

This economic model has created the perverse incentive for platforms to do whatever they can to retain their audience for as long as possible. This means prioritising content that provokes the strongest emotional response; a recipe that has ushered in our bleak era of rage bait, conspiracy theories, trauma porn and extreme political polarisation.

Lavie explains how these platforms tap into ancient systems in the human brain. The ability of our attention to be automatically captured by a sudden change is a survival mechanism. If a primitive human was foraging in the jungle, the sound of a distant twig snapping would draw their attention away. Digital media platforms are designed to present their information to you as if it is constantly vitally relevant, exploiting these mechanisms. "So we are tricking the system that is very functional under other circumstances to be dysfunctional," says Lavie.

Sebastian Watzl, a professor of philosophy at Oslo University, who studies attention, offers an explanation for why I feel so bad when I struggle to focus on my book. "I think we're experiencing a loss of control," he says. "We feel our attention is thrown around from one moment to the other in ways that are constantly changing and which we don't understand. We feel a loss of agency."

So where *does* individual agency come into this? If I'm tossed in the tides of huge forces, then is it a personal failing when I struggle to read in the morning and long to pick up my phone? From what I'm learning, it seems like the deck is stacked against me. But on the other hand, to suggest I'm powerless in the face of big tech's assault on my attention would imply I'm devoid of individual agency. How am I supposed to think about this?

"I don't like these clean-cut divisions that people make, where they say: 'Well, technology is entirely to blame,'" says Mark. "I don't buy this idea that people are powerless. There are lots of reasons why people don't exercise their power, but absolutely, we can change." This change can start with exercising your attention like a muscle, Mark suggests, by reading long-form content. She also talks about developing a "meta-awareness"; understanding your own motivations for each distracted turn to your phone, and questioning whether it's actually going to deliver what you want. For many of us, however, exercising this discipline is easier said than done.

47 seconds

The average time for which people focused on a screen before switching to something else in recent studies

Our generation is far from the first to be concerned about the state of our attention spans. In the fourth century, a monk named Evagrius Ponticus wrote about demons that would come and insert thoughts into the minds of monastics in order to distract them from their godly work. He offered tips for countering such attacks, such as responding to their wayward thoughts with relevant psalms.





50% of UK adults

In a 2021 study of 2,000 people, almost half believed their attention span had declined

"Every age has its modernity, which is often technologically driven, and with every age's modernity and new technological inventions goes a worry about distraction," says Marion Thain, director of Edinburgh Futures Institute and professor of culture and technology at Edinburgh University. Innovations such as the television, the cinema and even the novel – that noble source of information that I find myself struggling to read in bed – have been, in their day, accused of destroying the human capacity for attention.

"So the question to me is," says Thain, "is there something qualitatively or quantitatively different to the current panic around distraction in comparison to what we saw in the last great technological revolution?"

She believes that what is new is the sheer volume of information constantly competing for our attention; the infinite scroll every time we look at a digital device. I often find that I pick up my phone to do something specific, then end up distracted by notifications, flick through my usual apps and forget why I picked it up to begin with.

It doesn't help that, with today's wave of "appification", dozens of daily tasks that were once analogue now force me to pick up my smartphone, from paying for groceries to using public transport and accessing tickets for events. Each time I pick up my phone is another opportunity to slide into distraction.

Thain likens the current glut of attention-grabbing information in our digital lives to the obesity crisis and the emergence of junk food, when the market was flooded with new, high-calorie, low-nutrition products that people suddenly had to summon the willpower to resist. "Just as we're constantly making decisions about, 'That cream bun looks really tempting, but will it be good for my body?', there's something analogous in the information economy," she says.

"Like, 'Oh yeah, another hour scrolling social media is very tempting and will give that immediate reward, but is it actually in line with my longer-term goals? Will I look back on my deathbed and wish I'd scrolled social media more?' Probably not."

A useful distinction is that of – in the words of US philosopher Harry Frankfurt – first-order desires, or "what we want", and second-order desires: "what we want to want". We feel good when the two are aligned. When I'm reading in bed, TikTok is what I want, and my book is what I want to want. The misalignment provokes unease.

Some thinkers in the domain of philosophy believe the way brain and behaviour experts focus on attention as merely our ability to focus on a task is too narrow. This is the perspective of D Graham Burnett, a self-described "attention activist", who teaches history of science at Princeton and is co-founder and director of the Strother School of Radical Attention in New York.

"We need to rewild our understanding of actual human attention," he says, "because we've ended up in a funny little cul-de-sac where everybody's conception of their attention turns in tight circles around their keyboard and their screen. But, actually, attention is much more than that."

"Properly and capaciously understood," he continues, "human attention is not merely the instrumental operational capacity to stay with a stimulus on a screen productively for a long time. Properly understood, human attention is our ability to care, be interested, curious, and even to love."

Attention is the stuff human experience is made of. It is at the heart of every relationship. When you attend to something, you grant it meaning and importance in your life. It is, in the words of Thain: "The original currency of humankind." So when I'm worrying about how long I can concentrate on reading my book, am I thinking too small?

The following Saturday morning, I'm in bed again, but this time I'm reading about theories of attention. I began this research in order to find out whether I could try to read my book more efficiently, but I ended up realising that asking questions about attention inexorably leads to the question of what makes life meaningful. When you attend to something, you are making a choice about what your life is about. So what does it mean to pay attention well?

"I don't think there's a single way to pay attention well," says Watzl. "The response to the crisis of attention is not to think: 'I need to optimise my attention and get all my projects done.' That can be alienating. Not all projects are worthwhile," says Watzl. "Sometimes, it's good to use your attention to get a project done. But sometimes, it's time to stop doing a useless project and listen to a thought that came into your head unbidden. Then you can evaluate attention according to how much it contributes to a meaningful and autonomous life."

I put my book down and sigh. I pick up my phone, flick through it for a while, and then put that down, too. I decide that, maybe on this sunny morning, I'll go for a walk instead. And I decide to leave both my book *and* my phone at home.