

BRAINS IN OVERDRIVE

What neuroscience tells us about using mindfulness to take back the wheel

Thought Leadership



In the global pandemic that defined 2020, there was a point where we glimpsed what looked like a silver lining. Dolphins could be seen in the canals of Venice, smog dissipated in cities where skylines had become something we imagined more often than we actually saw them, and traffic cleared on roads where brake lights were permanent fixtures. In the middle of heartache, we had opportunity—to reevaluate, to reassess, to renew our lease on community, conservation, and compassion.

Why, then, alongside the stories of people paying for the groceries of strangers in the checkout line, have there been headlines detailing the increasing rates of domestic violence and homicide, plummeting rates of compliance on airlines, and other lesser forms of downright unruly, uncharitable, and uncongenial behaviors? Why is it that, rather than rise to the occasion, it seems that, as a species, we have demonstrated some of our worst behavior?

It turns out that this unfortunate phenomenon—the dissolution of our best intentions in the face of stress and strife—is not limited to interpersonal conflict or the incomprehensible trauma of the times. In day-to-day life, we experience the same challenges. For example, after participating in a task requiring difficult emotion regulation, people are more likely to cheat on their diets, even though the original task had nothing to do with nutrition. When our brains are running on fumes, we fall short on the standards and goals we set for ourselves when our tanks were full and our intentions were clear.

Harvard psychologist Daniel Wegner described self-regulation as a two-stream process: one stream identifying a behavior as being very important and the other stream identifying the

same behavior as something you should or should not do. During stress and distraction, Wagner suggests, the two streams can get jumbled. The first stream still enforces the importance of the behavior, but the second stream, labeling it as critically “go” or “no-go,” gets lost in the shuffle. The result? Precisely the wrong behavior at precisely the wrong time because of a stress-induced systemic failure and inability to engage our frontal cortex.

Even without the pandemic pressures or stress of everyday life, humans today face more distractions and process more data than at any other point in history. The barrage of information we deal with at any given moment—city sounds, the number of relationships we are expected to maintain, the incoming emails and texts—contributes to our cognitive load, the information our working memory can hold at one time. But many of us, no doubt, would say what we really experience is cognitive overload. Because we now process a staggering number of demands, our working memory ends up receiving far more information than it can comfortably handle.

The effects of cognitive overload are vast and varied, and when left unchecked, could have serious potential to undermine our mental health, wellbeing, and workplace productivity. We become frustrated, make poor decisions, suffer memory loss, and experience burnout. What’s more, research shows that, when we overload the brain’s frontal cortex, we also become less charitable, less helpful, and more likely to lie.

In a modern world where “go, go, go” is the only speed, slowing down may seem like a non-starter. Rather than being grounded in the present, we’re focused on the future, planning out the next

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moment—and the moment after that—in order to manage everything on our plates. But the shortcuts our brains take to navigate the complexities of everyday life can jostle and jumble our best intentions. If we don't strategize around this cognitive overload, we risk defaulting to these mental shortcuts, relying on automaticity, and expending a lot more energy trying to override our inclinations.

To reduce the experience of being overwhelmed, we may need to do the one thing that now goes against our very nature: **slow down**. When we pay more attention to the present moment, we become more mindful of the world around us—and those habits we use to move through it. And when we become more mindful, we can overcome some of our default, yet unproductive, tendencies, ultimately becoming, more aware, more agile, and more effective.

When our brains are overloaded, we go into autopilot.

Sitting atop your shoulders is three pounds of some of the richest, most complex material in the known universe: the human brain. To illustrate the infinite intricacies of this pale pink mass, think about the neurons alone—the messengers making connections that carry information around our brains. The average neuron makes roughly 10,000 connections to other nearby neurons. The result? Scientists found there are as many neuronal connections in a single cubic centimeter of brain tissue as there are stars in the entire Milky Way.

This brain of ours, however, evolved in—and for—a much simpler landscape. In hunter gatherer societies, humans had only a few priorities—protect the tribe, find food, avoid predators, and reproduce. The internet alone accounts for an unfathomable uptick in the complexity of modern society. Just consider these stats from

Worldometer: on any given day, there may be nearly 5 billion users online, over 250 billion emails sent, and more than 7 billion web searches made.

Our highly efficient brains have come up with strategies for reducing this cognitive overload we now so often experience. The brain makes sense of the world by taking shortcuts—by habitually and automatically sorting items and experiences into categories, recognizing patterns, making predictions, and filtering out extra info. These shortcuts save time and energy. Sometimes, however, the brain filters out information that might have been helpful or jumps to false conclusions. The result is roughly 150 identified cognitive biases (Halvorson and Rock, 2015).

Daniel Kahneman famously captured one category of biases—expedience biases—in his book, *Thinking, Fast and Slow* (2011). Kahneman explained that we have two modes of thinking: System 1 and System 2. System 1 responds quickly, automatically, and intuitively. System 2 responds slowly, deliberately, and effortfully. When we are crunched for time, we often use System 1. Though certainly speedy, it is not always accurate.

To be sure, not every cognitive bias is directly related to speed. We have bias towards gains over losses (loss aversion), certainty over risk (prospect theory), “insiders” over “outsiders” (in-group favoritism). When our brains are in overdrive, we rely more on automaticity, assumptions, instincts, and habits. We cut corners in order to conserve energy, ignoring crucial details that could have prevented flawed decisions or unconscious bias.

Cognitive biases can have serious social and economic consequences. Implicit biases can have serious implications for hiring, promotion, and leadership decisions, as well as more general effects on how we treat people who we identify

Implicit bias: Mindfulness override

Implicit bias—that is, the unconscious attribution of qualities to a member of one social group—can have serious implications for talent management and leadership decisions. Like other cognitive biases, implicit biases are a byproduct of the brain's automatic and habitual categorization: we stereotype based on generalized beliefs locked away in our unconscious mind, leading us to act in ways counter to our explicit views.

Implicit bias does have a costly effect on organizations. Indeed, studies show that implicit bias can influence how we hire candidates or promote employees—offering the job to someone with a more Western-sounding name, giving higher raises to workers with similar backgrounds to you. These hiring decisions, however unconscious, stymie workplace diversity, which, research has found, can negatively impact productivity, performance, and organizational effectiveness. But there may be simple strategies that can help us manage the behavioral components of implicit bias: research shows that compassion meditation can yield trait-like changes in as few as eight hours and can reduce usually intractable implicit bias (Kang et al., 2014).

as “different.” Biases related to processing speed can lead to simple yet costly mistakes in cultures that operate on urgency and fast turnaround times. For executives who experience the illusion of false consensus—that is, believing people agree with you more than they *actually* do—we may see support for an idea or initiative where there is none, leading to wasted resources. If an outcome is framed as positive, we may make riskier decisions; if that same result is framed negatively, we may take an overly cautious route. Something that seems profitable soon may not be the best choice in the long run, but distance biases may trick us into making the less economical choice.

Though our brains developed these strategies to be helpful—to combat the very overload we experience—the algorithm is an approximation, inherently imperfect.

Mindfulness can help put us back in the driver's seat.

Combatting bias is about teaching your brain that its automatic assumptions aren't always the right ones. Because habits and instincts are strategies our brains developed to help manage cognitive load, it seems paradoxical that relying less on habits and instinct might decrease cognitive load. However, neuroscientific research suggests that practicing mindfulness may do just that: one study showed that those who have trait-like mindfulness and short-term state-like mindfulness are less likely to make sunk cost errors—like continuing on a project that no longer proves fruitful (Hafenbrack, Kinias, and Barsade, 2013). Another study found that people practicing mindfulness are more likely to make economically rational decisions in an unfair ultimatum game (Kirk et al., 2011).

Studies show mindfulness practices can reduce cognitive load and inhibit automaticity, allowing us to be more deliberate in our habits and rituals. Mindfulness may reduce automatic evaluation and other forms of automatic social cognition, including implicit out-group bias, by minimizing reliance on previously established associations (Lueke and Gibson, 2015). Research also indicates that compassion meditation, another specific form of mindfulness practice, can yield trait-like changes in as few as eight hours and can reduce usually intractable implicit bias (Kang et al., 2014).

Researchers also found that meditation improved self-regulation in terms of response inhibition (Sahdra et al., 2011). Decreased midfrontal theta activity (involved in cognitive control) during response inhibition tasks in experienced meditators indicates that less cognitive control was needed to inhibit the response. Consistent with Lueke and Gibons's findings, another study found that routine meditation practice resulted in reduced associations between previous stimulus-response pairs (Andreu et al., 2019).

A typical process for self-regulating emotions, thoughts, and behaviors goes something like this: we start to fall back on autopilot mode, then—ideally—we recognize the automaticity kicking in, and put huge amounts of mental labor into pumping the brakes, and finally we shift gears toward a more deliberate, intentional set of thoughts and actions. Alternatively, by practicing mindfulness (which takes some proactive effort but less than is required to reverse gears), we reduce the tendency to default to learned or automatic associations—and thus, avoid that

By practicing mindfulness, we can focus less on battling our own automaticity and more on **knowing** it.



gargantuan effort to realize, redirect, and reassess. Indeed, in a 2015 study, psychologists Brian Galla and Angela Duckworth found that, compared to those who exercise rigorous self-control, people most effective in self-regulation are those who report needing less effort or struggle to self-regulate in the first place. Those who report being good at “resisting temptations” also report having fewer temptations to begin with.

In other words, people who practice mindfulness put less effortful cognitive control toward inhibiting automaticity and exhibit lower automaticity in their cognitions and behaviors. They work less hard to control their thoughts and don’t slip into a destructive autopilot mode of thought and behavior.

Taking the Wheel

Many current strategies for taking control of our thoughts and actions hinge on conscious, effortful control of unconscious processes, resulting in a Sisyphean struggle of mind over matter.

When we think about the relationship between mindfulness and task performance, practicing seems outright contradictory to the standard approach of rapidly processing and categorizing information. Automaticity has been, and even still sometimes remains, a functional and efficient adaptation to handling vast quantities of cognitive and perceptual input.

Mindfulness, by contrast, encourages slowing down, paying *more* attention, being more aware. At first, this seems antithetical to the brain’s primary goal of efficient and productive processing. But mindfulness offers us the opportunity to hone our attention skills—tuning your mind so that automaticity becomes something that you can use skillfully to direct your awareness to the most important information

from your environments (Glomb et al., 2011). In other words, we’re building meta-awareness—consciously choosing how and when we allow ourselves to ride on autopilot. Mindfulness opens the door to expending less energy fighting against the automatic processes we evolved to help us handle our environments. It helps us to be acutely aware of them.

There are easy ways to incorporate mindful practices into our day. Simple strategies like taking a pause when we are stressed or overwhelmed, spending a few minutes paying attention to each of our five senses, starting the day by listening to our thoughts and letting them go, and trying our best to stay in the moment can do more for our effectiveness and productivity than actively trying to combat our automatic processes and biased thinking and behavior. And mindfulness research shows that simple practices like these have substantial benefits, ranging from emotion regulation to empathy, decrease in cognitive bias to increased working memory, and increased positive leadership behaviors to improved communication (Glomb et al., 2011).

By practicing mindfulness, we can focus less on battling our own automaticity and more on **knowing** it. When we dismantle the biases that derail us and leverage those that enable us, we become the most agile and effective versions of ourselves.



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