SOCIAL SCIENCES

The normalization of (almost) everything

Our minds can get used to anything, and even crises start feeling normal **Rachit Dubey**

For a long time, many climate scientists and advocates held onto an optimistic belief that once the impacts of climate change became undeniable, people and governments would act. But whereas the predictions of climate models have increasingly borne out, the assumptions about human behavior have not. Even as disasters mount, climate change remains low on voters' priority lists, and policy responses remain tepid. To me, this gap reflects a deeper failure—not just in policy or communication, but in how we understand human adaptability.

When I began my career as a computational cognitive scientist, I was drawn to a defining strength of human cognition—a marked ability to adapt. My early work focused on the learning systems that allow people to adjust to new experiences and how artificial agents might emulate that flexibility (*1*, *2*). But over time, I came to see a deeper irony—people can get used to almost anything. Progress that was once longed for, such as higher income or greater luxury, quickly loses emotional value (*3*). Crises such as pandemics or climate change start to feel "normal," dull in urgency, and fade into the background (*4*).

Although such failures are often attributed to political or structural forces, I believe that they also reflect a deeper cognitive misalignment in how our minds perceive change over time. The human tendency to normalize is a far-reaching phenomenon that undercuts our response to many large-scale problems, from public health, to gun violence, to climate change.

Although adaptation has been studied across neuroscience, cognitive science, and machine learning, its broader societal consequences remain underexplored. Understanding when and why adaptation backfires requires an interdisciplinary approach—one that bridges cognitive science, machine learning, social psychology, and public policy. My work explores when exactly adaptability, a core strength of human cognition, becomes a liability. I use computational tools (e.g., reinforcement learning and Bayesian inference) alongside large-scale behavioral studies to understand when and why adaptation can fail and how systems might be designed that counteract it.

My recent study exemplifies this approach (*5*). My colleagues and I set out to understand the "boiling frog" effect—the idea that climate change often fails to sustain public attention because it unfolds slowly. Although it has been widely discussed in climate science as a barrier to climate action, it remains poorly understood. We approached this problem using a cognitive science lens and asked: How do people perceive gradually changing data, and what determines whether change stands out or fades away? Through a series of large-scale behavioral experiments, we found that people perceive climate change as more impactful when presented with binary climate data (e.g., historical trend of lake freeze) compared with continuous climate data (e.g., historical trend of mean winter temperature), even when the underlying trends were matched. These results replicated across multiple experiments, including studies with real-world lake freeze and temperature records.

But why did binary data amplify perceived change? In a follow-up experiment, we showed that this is in part because gradual shifts in binary data create an "illusion" of sudden change, which increases the salience of the climate trend. To explain this illusion, we turned to Bayesian changepoint modeling to simulate how an ideal observer infers shifts in gradually changing data. The model showed the same asymmetry: Gradual changes in binary sequences were more likely to produce apparent changepoints. In other words, binary data make smooth trends appear more punctuated and, as a consequence, more psychologically salient.

These results reveal that binary data fundamentally alter the inferences that people (and models) make about change, amplifying perceived impact. More broadly, they show how cognitive and computational tools can elucidate long-standing challenges in climate science, such as climate apathy, and offer paths for intervention.

Whereas this research examines adaptation to decline, another strand of my work explores adaptation to improvement—i.e., why even substantial progress fails to satisfy people for long (*6*, *7*). In one study, using the framework of reinforcement learning, I provided a normative account of hedonic adaptation, showing that the drive to "always want more" may be computationally optimal, even if emotionally costly (*6*). Together, these studies reveal a broader tension: The very capacities that make humans flexible can also erode engagement with both crisis and comfort.

Whether people stop noticing worsening conditions or appreciating improvements, the root problem is the same—a mind that recalibrates too quickly, misaligning emotion, attention, and action. Climate change exposes this mismatch between how minds process change and how the world now changes, a pattern that may also underlie many people's disengagement from inequality, disruption, and social change.

Midway through my PhD, I shifted away from traditional cognitive science topics to tackle broader, interdisciplinary challenges around adaptation and climate change. This shift was met with skepticism, with some questioning whether it would lead to meaningful publications or real-world effects. But I believed that making sense of societal inaction requires formal theories of adaptation that engage with real-world complexity.

Since then, my research has attracted interest from climate communicators and policy groups seeking to apply these findings in public-facing tools—especially for visualizing climate change in ways that emphasize concrete over abstract trends (*8*). My colleagues and I are also in early conversations with a state climate agency about testing our binary data findings in public alerts. Although my work remains grounded in basic science, these discussions highlight the growing relevance of theory-driven models for real-world challenges.

In July 2025, I launched my laboratory in the Department of Communication at the University of California Los Angeles, where I will continue to pursue the basic science of adaptation. I believe that this work demands interdisciplinary methods—behavioral experiments; formal models; and insights from neuroscience, psychology, computer science, and public policy. My goal is to help build that bridge between disciplines and to better understand how human minds (and societies) adapt to change. □

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