

## This Will Make You Smarter by Maria Popova

This Will Make You Smarter: 151 Big Thinkers Each Pick a Concept to Enhance Your Cognitive Toolkit

The importance of “the umwelt,” or why failure and uncertainty are essential for science and life.

Every year for more than a decade, intellectual impresario and Edge editor John Brockman has been asking the era’s greatest thinkers a single annual question, designed to illuminate some important aspect of how we understand the world. In 2010, he asked how the Internet is changing the way we think. In 2011, with the help of psycholinguist Steven Pinker and legendary psychologist Daniel Kahneman, he posed an even grander question: “What scientific concept will improve everybody’s cognitive toolkit?” The answers, featuring a wealth of influential scientists, authors, and thought-architects, are released today in *This Will Make You Smarter: New Scientific Concepts to Improve Your Thinking* (public library) — a formidable anthology of short essays by 151 of our time’s biggest thinkers on subjects as diverse as the power of networks, cognitive humility, the paradoxes of daydreaming, information flow, collective intelligence, and a dizzying, mind-expanding range in between. Together, they construct a powerful toolkit of meta-cognition — a new way to think about thinking itself.

Brockman prefaces the essays with an important definition that captures the dimensionality of “science”:

Here, the term ‘scientific’ is to be understood in a broad sense — as the most reliable way of gaining knowledge about anything, whether it be human behavior, corporate behavior, the fate of the planet, or the future of the universe. A ‘scientific concept’ may come from philosophy, logic, economics, jurisprudence, or any other analytic enterprises, as long as it is a rigorous tool that can be summed up succinctly but has broad application to understanding the world.”

The diverse answers come from a number of Brain Pickings favorites. Neuroscientist David Eagleman, author of the excellent *Incognito: The Secret Lives of the Brain*, explores the concept of “the umwelt” coined by biologist Jakob von Uexküll in 1909 — the idea that different animals in the same ecosystem pick up on different elements of their environment and thus live in different micro-realities based on the subset of the world they’re able to detect. Eagleman stresses the importance of recognizing our own umwelt — our unawareness of the limits of our awareness:

I think it would be useful if the concept of the umwelt were embedded in the public lexicon. It neatly captures the idea of limited knowledge, of unobtainable information, and of unimagined possibilities. Consider the criticisms of policy, the assertions of dogma, the

declarations of fact that you hear every day — and just imagine if all of these could be infused with the proper intellectual humility that comes from appreciating the amount unseen.”

Nobel laureate Daniel Kahneman, who authored one of the best psychology books of 2011, contemplates the “focusing illusion” — or tendency to misjudge the scale of impact certain circumstances, from a pay raise to the death of a loved one, will have on our actual well-being.

Marketers exploit the focusing illusion. When people are induced to believe that they “must have” a good, they greatly exaggerate the difference that the good will make to the quality of their life. The focusing illusion is greater for some goods than for others, depending on the extent to which the goods attract continued attention over time. The focusing illusion is likely to be more significant for leather car seats than for books on tape.

Politicians are almost as good as marketers in causing people to exaggerate the importance of issues on which their attention is focused. People can be made to believe that school uniforms will significantly improve educational outcomes, or that health care reform will hugely change the quality of life in the United States — either for the better or for the worse. Health care reform will make a difference, but the difference will be smaller than it appears when you focus on it.

Martin Seligman, father of positive psychology, writes about PERMA, the five pillars of well-being — Positive Emotion, Engagement, Positive Relationships, Meaning and Purpose, and Accomplishment — reminding us that reducing disabling conditions like poverty, disease, depression, aggression, and ignorance is only one half of the life satisfaction equation:

Science and public policy have traditionally been focused solely on remediating the disabling conditions, but PERMA suggests that this is insufficient. If we want global well being, we should also measure and try to build PERMA. The very same principal seems to be true in your own life: if you wish to flourish personally, getting rid of depression, anxiety, and anger and getting rich is not enough, you also need to build PERMA directly.”

Biological anthropologist Helen Fisher, who has previously examined the neurochemistry of love and desire, zooms in on the temperament as the essential building block of the self:

Personality is composed of two fundamentally different types of traits: those of ‘character;’ and those of ‘temperament.’ Your character traits stem from your experiences. Your childhood games; your family’s interests and values; how people in your community express love and hate; what relatives and friends regard as courteous or perilous; how those around you worship; what they sing; when they laugh; how they make a living and relax: innumerable cultural forces build your unique set of character traits. The balance of your personality is your temperament, all the biologically based tendencies that contribute to your consistent patterns of feeling, thinking and behaving. As Spanish philosopher, Jose Ortega y Gasset, put it, ‘I am, plus my circumstances.’ Temperament is the ‘I am,’ the foundation of who you are.”

Wrongologist Kathryn Schulz, whose recent talk on the psychology of regret you might recall, finds optimism in “the pessimistic meta-induction from the history of science” — the idea that, because we now know scientific theories of yore have often been wrong, it’s

safe to assume our own present-day theories are quite possibly wrong as well.

At best, we nurture the fantasy that knowledge is always cumulative, and therefore concede that future eras will know more than we do. But we ignore or resist the fact that knowledge collapses as often as it accretes, that our own most cherished beliefs might appear patently false to posterity.

That fact is the essence of the meta-induction — and yet, despite its name, this idea is not pessimistic. Or rather, it is only pessimistic if you hate being wrong. If, by contrast, you think that uncovering your mistakes is one of the best ways to revise and improve your understanding of the world, then this is actually a highly optimistic insight.”

In fact, this seems to be one of the anthology’s bigger running themes — the idea that error, failure, and uncertainty are not only common to both the scientific method and the human condition, but also essential. Futurist and Wired founder Kevin Kelly joins the ranks of famous creators admonishing against the fear of failure:

We can learn nearly as much from an experiment that does not work as from one that does. Failure is not something to be avoided but rather something to be cultivated. That’s a lesson from science that benefits not only laboratory research, but design, sport, engineering, art, entrepreneurship, and even daily life itself. All creative avenues yield the maximum when failures are embraced.

The chief innovation that science brought to the state of defeat is a way to manage mishaps. Blunders are kept small, manageable, constant, and trackable. Flops are not quite deliberate, but they are channeled so that something is learned each time things fell. It becomes a matter of failing forward.”

And theoretical physicist Carlo Rovelli reminds us uncertainty and the willingness to be proven wrong are a vital part of intellectual, and I dare add personal, growth:

The very foundation of science is to keep the door open to doubt. Precisely because we keep questioning everything, especially our own premises, we are always ready to improve our knowledge. Therefore a good scientist is never ‘certain’. Lack of certainty is precisely what makes conclusions more reliable than the conclusions of those who are certain: because the good scientist will be ready to shift to a different point of view if better elements of evidence, or novel arguments emerge. Therefore certainty is not only something of no use, but is in fact damaging, if we value reliability.”

But my favorite, for obvious reasons, comes from curator extraordinaire Hans-Ulrich Obrist:

Lately, the word “curate” seems to be used in an greater variety of contexts than ever before, in reference to everything from a exhibitions of prints by Old Masters to the contents of a concept store. The risk, of course, is that the definition may expand beyond functional usability. But I believe ‘curate’ finds ever-wider application because of a feature of modern life that is impossible to ignore: the incredible proliferation of ideas, information, images, disciplinary knowledge, and material products that we all witnessing today. Such proliferation makes the activities of filtering, enabling, synthesizing, framing, and remembering more and more important as basic navigational tools for 21st century life. These are the tasks of the curator, who is no longer understood as simply the person

who fills a space with objects but as the person who brings different cultural spheres into contact, invents new display features, and makes junctions that allow unexpected encounters and results.

To curate, in this sense, is to refuse static arrangements and permanent alignments and instead to enable conversations and relations. Generating these kinds of links is an essential part of what it means to curate, as is disseminating new knowledge, new thinking, and new artworks in a way that can seed future cross-disciplinary inspirations. But there is another case for curating as a vanguard activity for the 21st century.

As the artist Tino Sehgal has pointed out, modern human societies find themselves today in an unprecedented situation: the problem of lack, or scarcity, which has been the primary factor motivating scientific and technological innovation, is now being joined and even superseded by the problem of the global effects of overproduction and resource use. Thus moving beyond the object as the locus of meaning has a further relevance. Selection, presentation, and conversation are ways for human beings to create and exchange real value, without dependence on older, unsustainable processes. Curating can take the lead in pointing us towards this crucial importance of choosing.”

As infinitely fascinating and stimulating as *This Will Make You Smarter: New Scientific Concepts to Improve Your Thinking* is, its true gift — Brockman’s true gift — is in acting as a potent rupture in the filter bubble of our curiosity, cross-pollinating ideas across a multitude of disciplines to broaden our intellectual comfort zones and, in the process, spark a deeper, richer, more dimensional understanding not only of science, but of life itself.

The text of the answers is also available online in its entirety.

For essential companion reading, don’t forget *Culture and The Mind* — the two complementary anthologies Brockman released last year, culling 15 years of cutting-edge thinking from the Edge archives.