

Javier Zarracina/Vox

Intellectual humility: the importance of knowing you might be wrong

Why it's so hard to see our own ignorance, and what to do about it.

By Brian Resnick | @B_resnick | brian@vox.com | Jan 4, 2019, 8:40am EST

Illustrations by Javier Zarracina

Julia Rohrer wants to create a radical new culture for social scientists. A personality psychologist at the Max Planck Institute for Human Development, Rohrer is trying to get her peers to publicly, willingly admit it when they are wrong.

To do this, she, along with some colleagues, started up something called the Loss of Confidence Project. It's designed to be an academic safe space for researchers to declare for all to see that they no longer believe in the accuracy of one of their previous findings. The effort recently yielded a paper that includes six **admissions** of no confidence. And it's accepting submissions **until January 31**.

"I do think it's a cultural issue that people are not willing to admit mistakes," Rohrer says. "Our broader goal is to gently nudge the whole scientific system and psychology toward a different culture," where it's okay, normalized, and expected for researchers to admit past mistakes and not get penalized for it.

The project is timely because a large **number of scientific findings** have been disproven, or become more doubtful, in recent years. One high-profile **effort** to retest 100 psychological experiments found only 40 percent replicated with more rigorous methods. It's been a painful period for social scientists, who've had to deal with failed replications of classic studies and realize their research practices are often weak.

“NOT KNOWING THE SCOPE OF YOUR OWN IGNORANCE IS PART OF THE HUMAN CONDITION”

It's been fascinating to watch scientists struggle to make their institutions more humble. And I believe there's an important and underappreciated virtue embedded in this process.

For the past few months, I've been talking to many scholars about intellectual humility, the characteristic that allows for admission of wrongness.

I've come to appreciate what a crucial tool it is for learning, especially in an increasingly interconnected and complicated world. As technology makes it easier **to lie** and spread false information **incredibly quickly**, we need intellectually humble, curious people.

I've also realized how difficult it is to foster intellectual humility. In my reporting on this, I've learned there are three main challenges on the path to humility:

1. In order for us to acquire more intellectual humility, we all, even the smartest among us, need to better appreciate our cognitive blind spots. Our minds are more imperfect and imprecise than we'd often like to admit. Our ignorance can be invisible.
2. Even when we overcome that immense challenge and figure out our errors, we need to remember we won't necessarily be punished for saying, "I was wrong." And we need to be braver about saying it. We need a culture that celebrates those words.
3. We'll never achieve perfect intellectual humility. So we need to choose our convictions thoughtfully.

This is all to say: Intellectual humility isn't easy. But damn, it's a virtue worth striving for, and failing for, in this new year.

Intellectual humility, explained



Intellectual humility is simply “the recognition that the things you believe in might in fact be wrong,” as **Mark Leary**, a social and personality psychologist at Duke University, tells me.

But don't confuse it with overall humility or bashfulness. It's not about being a pushover; it's not about lacking confidence, or self-esteem. The intellectually humble don't cave every time their thoughts are challenged.

Instead, it's a method of thinking. It's about entertaining the possibility that you may be wrong and being open to learning from the experience of others. Intellectual humility is about being actively curious about your blind spots. One illustration is in the ideal of the scientific method, where a scientist actively works against her own hypothesis, attempting to rule out any other alternative explanations for a phenomenon before settling on a conclusion. It's about asking: What am I missing here?

It doesn't require a high IQ or a particular skill set. It does, however, require making a habit of thinking about your limits, which can be painful. "It's a process of monitoring your own confidence," Leary says.

WHEN I OPEN MYSELF UP TO THE VASTNESS OF MY OWN IGNORANCE, I CAN'T HELP BUT FEEL A SUDDEN SUFFOCATING FEELING

This idea is older than social psychology. Philosophers from the earliest days have **grappled** with the limits of human knowledge. Michel de Montaigne, the 16th-century French philosopher credited with inventing the essay, wrote that "the plague of man is boasting of his knowledge."

Social psychologists have learned that humility is associated with other valuable character traits: People who score higher on intellectual humility questionnaires are more open to **hearing opposing views**. They more readily seek out information that conflicts with their worldview. They pay **more attention to evidence** and have a stronger self-awareness when they answer a question incorrectly.

When you ask the intellectually arrogant if they've heard of bogus historical events like "Hamrick's Rebellion," they'll say, "Sure." The intellectually humble are less likely to do so. Studies have found that cognitive reflection — i.e., analytic thinking — is **correlated** with being better able to discern fake news stories from real ones. These studies haven't looked at intellectual humility per se, but it's plausible there's an overlap.

Most important of all, the intellectually humble are more likely to admit it when they are wrong. When we admit we're wrong, we can grow closer to the truth.

One reason I've been thinking about the virtue of humility recently is because our president, Donald Trump, is one of the least humble people on the planet.

It was Trump who said on the night of his nomination, "I alone can fix it," with the "it" being our entire political system. It was Trump who once said, "**I have one of the great memories of all time.**" More recently, Trump told the Associated Press, "I have a natural instinct for science," in **dodging** a question on climate change.

A frustration I feel about Trump and the era of history he represents is that his pride and his success — he is among the most powerful people on earth — seem to be related. He exemplifies how our society rewards confidence and bluster, not truthfulness.

Yet we've also seen some very high-profile examples lately of how overconfident leadership can be ruinous for companies. Look at what happened to Theranos, a company that promised to change the way blood samples are drawn. It was all hype, all bluster, and it collapsed. Or consider Enron's overconfident executives, who were often hailed for **their intellectual brilliance** — they ran the company into the ground with risky, suspect financial decisions.

The problem with arrogance is that the truth always catches up. Trump may be president and confident in his denials of climate change, but the changes to our environment will still ruin so many things in the future.

Why it's so hard to see our blind spots: "Our ignorance is invisible to us"

As I've been reading the psychological research on intellectual humility and the character traits it correlates with, I can't help but fume: Why can't more people be like this?

We need more intellectual humility for two reasons. One is that our culture promotes and rewards overconfidence and arrogance (think Trump and Theranos, or the advice your career counselor gave you when going into job interviews). At the same time, when we are wrong — out of ignorance or error — and realize it, our culture doesn't make it easy to admit it. Humbling moments too easily can turn into moments of humiliation.

So how can we promote intellectual humility for both of these conditions?

In asking that question of researchers and scholars, I've learned to appreciate how hard a challenge it is to foster intellectual humility.

First off, I think it's helpful to remember how flawed the human brain can be and how prone we all are to intellectual blind spots. When you learn about how the brain actually works, how it actually perceives the world, it's hard not to be a bit horrified, and a bit humbled.

We often can't see — or even sense — what we don't know. It helps to realize that it's normal and human to be wrong.

It's rare that a viral meme also provides a surprisingly deep lesson on the imperfect nature of the human mind. But believe it or not, the great **“Yanny or Laurel” debate** of 2018 fits the bill.

For the very few of you who didn't catch it — I hope you're recovering nicely from that coma — here's what happened.

An audio clip (you can hear it below) says the name “Laurel” in a robotic voice. Or does it? Some people hear the clip and immediately hear “Yanny.” And both sets of people — Team Yanny and Team Laurel — are indeed hearing the same thing.

Hearing, the perception of sound, ought to be a simple thing for our brains to do. That so many people can listen to the same clip and hear such different things should give us humbling pause. Hearing “Yanny” or “Laurel” in any given moment ultimately depends on a whole host of factors: the quality of the speakers you're using, whether you have hearing loss, your expectations.

Here's the deep lesson to draw from all of this: Much as we might tell ourselves our experience of the world is the truth, our reality will always be an interpretation. Light enters our eyes, sound waves enter our ears, chemicals waft into our noses, and it's up to our brains to make a guess about what it all is.

“THE FIRST RULE OF THE DUNNING-KRUGER CLUB IS YOU DON’T KNOW YOU’RE A MEMBER OF THE DUNNING-KRUGER CLUB”

Perceptual tricks like this (“**the dress**” is another one) reveal that our perceptions are not the absolute truth, that the physical phenomena of the universe are indifferent to whether our feeble sensory organs can perceive them correctly. We’re just guessing. Yet these phenomena leave us indignant: How could it be that our perception of the world isn’t the only one?

That sense of indignation is called naive realism: the feeling that our perception of the world is the truth. “I think we sometimes confuse effortless with accuracy,” **Chris Chabris**, a psychological researcher who co-authored a book on the **challenges of human perception, tells me**. When something is so immediate and effortless to us — hearing the sound of “Yanny” — it just **feels true**. (Similarly, psychologists find when a lie is repeated, it’s more likely to be **misremembered as being true**, and for a similar reason: When you’re hearing something for the second or third time, your brain becomes faster to respond to it. And that fluency is confused with truth.)

Our interpretations of reality are often arbitrary, but we’re still **stubborn** about them. Nonetheless, the same observations can lead to wildly different conclusions.

(Here’s that same sentence in GIF form.)

For every sense and every component of human judgment, there are illusions and ambiguities we interpret arbitrarily.

Some are gravely serious. White people often perceive black men to be bigger, taller, and more muscular (and therefore **more threatening**) than they really are. That’s racial bias — but it’s also a socially constructed illusion. When we’re taught or learn to fear other people, our brains distort their potential threat. They seem more menacing, and we want to build walls around them. When we learn or are taught that other people **are less than human**, we’re less likely to look upon them kindly and more likely to be okay when violence is committed against them.

Not only are our interpretations of the world often arbitrary, but we're often overconfident in them. "Our ignorance is invisible to us," David Dunning, an expert on human blind spots, says.

You might recognize his name as half of the psychological phenomenon that bears his name: the Dunning-Kruger effect. That's where people of low ability — let's say, those who fail to understand logic puzzles — tend to unduly overestimate their abilities. Inexperience masquerades as expertise.

The classic Dunning-Kruger finding: People who perform worst on a task are supremely overconfident in their ability to perform that task. | *Journal of Personality and Social Psychology*

An irony of the Dunning-Kruger effect is that so many people misinterpret it, are overconfident in their understanding of it, **and get it wrong.**

When people talk or write about the Dunning-Kruger effect, it's almost always in reference to *other* people. "The fact is this is a phenomenon that visits all of us sooner or later," Dunning says. We're all overconfident in our ignorance from time to time. (Perhaps related: Some 65 percent of Americans **believe** they're more intelligent than average, which is wishful thinking.)

Similarly, we're overconfident in our ability to remember. Human memory is extremely malleable, prone to small changes. When we remember, we don't wind back our minds to a certain time and relive that exact moment, yet many **of us think** our memories work like a videotape.

Dunning hopes his work helps people understand that "not knowing the scope of your own ignorance is part of the human condition," he says. "But the problem with it is we see it in other people, and we don't see it in ourselves. The first rule of the Dunning-Kruger club is you don't know you're a member of the Dunning-Kruger club."



People are unlikely to judge you harshly for admitting you're wrong

In 2012, psychologist Will Gervais scored an honor any PhD science student would covet: a **co-authored paper** in the journal *Science*, one of the top interdisciplinary scientific journals in the world. Publishing in *Science* doesn't just help a researcher rise up in academic circles; it often gets them a lot of media attention too.

One of the experiments in the paper tried to see if getting people to think more rationally would make them less willing to report religious beliefs. They had people look

at a picture of Rodin's **The Thinker** or another statue. They thought The Thinker would nudge people to think harder, more analytically. In this more rational frame of mind, then, the participants would be less likely to endorse believing in something as faith-based and invisible as religion, and that's what the study found. It was **catnip** for science journalists: one small trick to change the way we think.

“HOW WOULD I KNOW IF I WAS WRONG?” IS ACTUALLY A REALLY, REALLY HARD QUESTION TO ANSWER

But it was a tiny, small-sample study, the exact type that is prone to yielding false positives. Several years later, another lab attempted to replicate the findings with a **much larger sample size**, and failed to find any evidence for the effect.

And while Gervais knew that the original study wasn't rigorous, he couldn't help but feel a twinge of discomfort.

“Intellectually, I could say the original data weren't strong,” he says. “That's very different from the human, personal reaction to it. Which is like, ‘Oh, shit, there's going to be a published failure to replicate my most cited finding that's gotten the most **media attention**.’ You start worrying about stuff like, ‘Are there going to be career repercussions? Are people going to think less of my other work and stuff I've done?’”

Gervais's story is familiar: Many of us fear we'll be seen as less competent, less trustworthy, if we admit wrongness. Even when we can see our own errors — which, as outlined above, is not easy to do — we're hesitant to admit it.

But turns out this assumption is **false**. As **Adam Fetterman**, a social psychologist at the University of Texas El Paso, has found in a **few studies**, wrongness admission isn't usually judged harshly. “When we do see someone admit that they are wrong, the wrongness admitter is seen as more communal, more friendly,” he says. It's almost never the case, in his studies, “that when you admit you're wrong, people think you are less competent.”

Sure, there might be some people who will troll you for your mistakes. There might be **a**

mob on Twitter that converges in order to shame you. Some moments of humility could be humiliating. But this fear must be vanquished if we are to become less intellectually arrogant and more intellectually humble.

Javier Zarracina/Vox

Humility can't just come from within — we need environments where it can thrive

But even if you're motivated to be more intellectually humble, our culture doesn't always reward it.

The field of psychology, overall, has been reckoning with a **“replication crisis”** where many classic findings in the science don't hold up under rigorous scrutiny. Incredibly influential textbook findings in psychology — like the **“ego depletion”** theory of willpower or the **“marshmallow test”** — have been bending or breaking.

I've found it fascinating to watch the field of psychology deal with this. For some researchers, the reckoning has been personally unsettling. “I'm in a dark place,” Michael Inzlicht, a University of Toronto psychologist, **wrote** in a 2016 blog post after seeing the theory of ego depletion crumble before his eyes. “Have I been chasing puffs of smoke for all these years?”

“IT'S BAD TO THINK OF PROBLEMS LIKE THIS LIKE A RUBIK'S CUBE: A PUZZLE THAT HAS A NEAT AND SATISFYING SOLUTION THAT YOU CAN PUT ON YOUR DESK”

What I've learned from reporting on the “replication crisis” is that intellectual humility requires support from peers and institutions. And that environment is hard to build.

“What we teach undergrads is that scientists want to prove themselves wrong,” says **Simine Vazire**, a psychologist and journal editor who often writes and speaks about replication issues. “But, ‘How would I know if I was wrong?’ is actually a really, really hard question to answer. It involves things like having critics yell at you and telling you that you did things wrong and reanalyze your data.”

And that's not fun. Again: Even among scientists — people who ought to question everything — intellectual humility is hard. In some cases, researchers have refused to concede their original conclusions despite the **unveiling of new evidence**. (One famous psychologist under fire recently told me **angrily**, “I will stand by that conclusion for the rest of my life, no matter what anyone says.”)

Psychologists are human. When they reach a conclusion, it becomes hard to see things another way. Plus, the incentives for a successful career in science push researchers to publish as many positive findings as possible.

There are two solutions — among many — to make psychological science more humble, and I think we can learn from them.

One is that humility needs to be built into the standard practices of the science. And that happens through transparency. It's becoming more commonplace for scientists to preregister — i.e., commit to — a study design before even embarking on an experiment. That way, it's harder for them to deviate from the plan and cherry-pick results. It also makes sure all data is open and accessible to anyone who wants to conduct a reanalysis.

That “sort of builds humility into the structure of the scientific enterprise,” Chabris says. “We're not all-knowing and all-seeing and perfect at our jobs, so we put [the data] out there for other people to check out, to improve upon it, come up with new ideas from and so on.” To be more intellectually humble, we need to be more transparent about our knowledge. We need to show others what we know and what we don't.

And two, there needs to be more celebration of failure, and a culture that accepts it. That includes building safe places for people to admit they were wrong, like the **Loss of Confidence Project**.

But it's clear this cultural change won't come easily.

“In the end,” Rohrer says, after getting a lot of positive feedback on the project, “we ended up with just a handful of statements.”

We need a balance between convictions and humility

There's a personal cost to an intellectually humble outlook. For me, at least, it's anxiety.

When I open myself up to the vastness of my own ignorance, I can't help but feel a sudden suffocating feeling. I have just one small mind, a tiny, leaky boat upon which to go exploring knowledge in a vast and knotty sea of which I carry no clear map.

Why is it that some people never seem to wrestle with those waters? That they stand on the shore, squint their eyes, and transform that sea into a puddle in their minds and then get awarded for their false certainty? "I don't know if I can tell you that humility will get you farther than arrogance," says **Tenelle Porter**, a University of California Davis psychologist who has **studied** intellectual humility.

Of course, following humility to an extreme end isn't enough. You don't need to be humble about your belief that the world is round. I just think more humility, sprinkled here and there, would be quite nice.

"It's bad to think of problems like this like a Rubik's cube: a puzzle that has a neat and satisfying solution that you can put on your desk," says **Michael Lynch**, a University of Connecticut philosophy professor. Instead, it's a problem "you can make progress at a moment in time, and make things better. And that we can do — that we can definitely do."

For a democracy to flourish, Lynch argues, we need a balance between convictions — our firmly held beliefs — and humility. We need convictions, because "an apathetic electorate is no electorate at all," he says. And we need humility because we need to listen to one another. Those two things will always be in tension.

The Trump presidency suggests there's too much conviction and not enough humility in our current culture.

"The personal question, the existential question that faces you and I and every thinking human being, is, 'How do you maintain an open mind toward others and yet, at the same time, keep your strong moral convictions?'" Lynch says. "That's an issue for all of us."

To be intellectually humble doesn't mean giving up on the ideas we love and believe in. It just means we need to be thoughtful in choosing our convictions, be open to adjusting them, seek out their flaws, and never stop being curious about why we believe what we believe. Again, that's not easy.

You might be thinking: “All the social science cited here about how intellectual humility is correlated with open-minded thinking — what if that’s all bunk?” To that, I’d say the research isn’t perfect. Those studies are based on self-reports, where it can be hard to trust that people really do know themselves or that they’re being totally honest. And we know that social science findings are often upended.

But I’m going to take it as a point of conviction that intellectual humility is a virtue. I’ll draw that line for myself. It’s my conviction.

Could I be wrong? Maybe. Just try to convince me otherwise.

ENERGY & ENVIRONMENT

New York just passed the most ambitious climate target in the country

FUTURE PERFECT

The Sacklers helped cause the opioid epidemic. They’re still making excuses for it.

POLITICS & POLICY

Trump’s EPA just replaced Obama’s signature climate policy with a much weaker rule

[View all stories in Science & Health](#)