

A reprint from

American Scientist

the magazine of Sigma Xi, The Scientific Research Honor Society

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How People Decide to Trust in Science

Surveys purporting to document increasing mistrust in research are oversimplifying complex phenomena.

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In September 2021, the National Academies' Committee on Science, Technology, and Law convened a panel that asked the question: "Is there public mistrust of science?" Panelists, including one of us (Eyal), were asked to respond to the sense among pundits, commentators, and many scientists that a large swath of the public is skeptical, if not downright dismissive, of scientific findings on issues ranging from vaccination to masks to climate change.

Some behavioral evidence seems to support this idea. Although the United States led the way in vaccinations early in the COVID-19 pandemic, it has since fallen behind most other developed nations in the proportion of the population who have received at least two shots (69.5 percent in the United States, while the rates in South Korea, Australia, Canada, Spain, or France are well above 80 percent). There is also a partisan divide in the United States. According to the U.S. Centers for Disease Control and Prevention (CDC), the rate of those who have received a booster shot ranges from 24–34 percent in some predominately Democrat states, to 7–12 percent in some predominately Republican states.

The exact significance of these observations is unclear, however. They could indicate lack of trust in science, medicine, vaccinations, or the COVID-19 vaccine per se. They could also indicate a declining sense of urgency; a lack of coordinated,

centralized capacity; increased political polarization; or any of multiple other factors. Observers attribute these trends to mistrust in science because national surveys, such as those by the Pew Research Center, indicate that the proportion of Americans, especially Republicans, expressing "a great deal" or "a fair amount" of confidence in scientists has declined precipitously during the pandemic. People are making sweeping political conclusions and even enacting policies and education programs based on assumptions that may not be true. (See "What the Public Really Thinks About Scientists," July–August 2021.)

We argue that survey evidence about "trust in science" is premised on multiple unexamined assumptions, and therefore should not be trusted (irony intended). Surveys assume, for example, that it is possible to distinguish *science* as a single entity in which public trust is placed. They assume that trust in science is the normal state, whereas mistrust is the anomaly, the puzzle requiring explanation. They assume that it is easy and straightforward to distinguish between trust and mistrust. Most importantly, they assume that we know what "trust" is and that our methods for measuring it are adequate. None of these assumptions can be taken for granted.

Mistrust in Regulations

It's unclear what exactly individuals mistrust when they answer a survey

indicating "little" trust in scientists. We doubt that all of science is equally implicated in this response. It is unlikely that many people are skeptical about, say, solid-state physics or molecular biology. The mistrust, when it is professed, is specifically directed at *regulatory science* of the sort that is conducted by the CDC, the U.S. Food and Drug Administration (FDA), the U.S. Environmental Protection Agency, and so on. Before the pandemic, surveys asking about trust in "scientists" writ large, or "the leaders of the scientific community," found that relatively stable majorities—around 75 percent—indicated "a great deal" or "a fair amount" of trust in these groups (though what is "a fair amount" is anyone's guess). On the other hand, over a decade ago, the Harris Poll found that trust in the FDA declined from 80 percent in the 1970s to 36 percent in 2006. By *regulatory science*, we mean the scientific research that is used to guide regulation and policy. A vaccine mandate by itself is not regulatory science; it is instead a regulation arrived at by considering practical questions as well as evidence from clinical trials, animal studies, and so on.

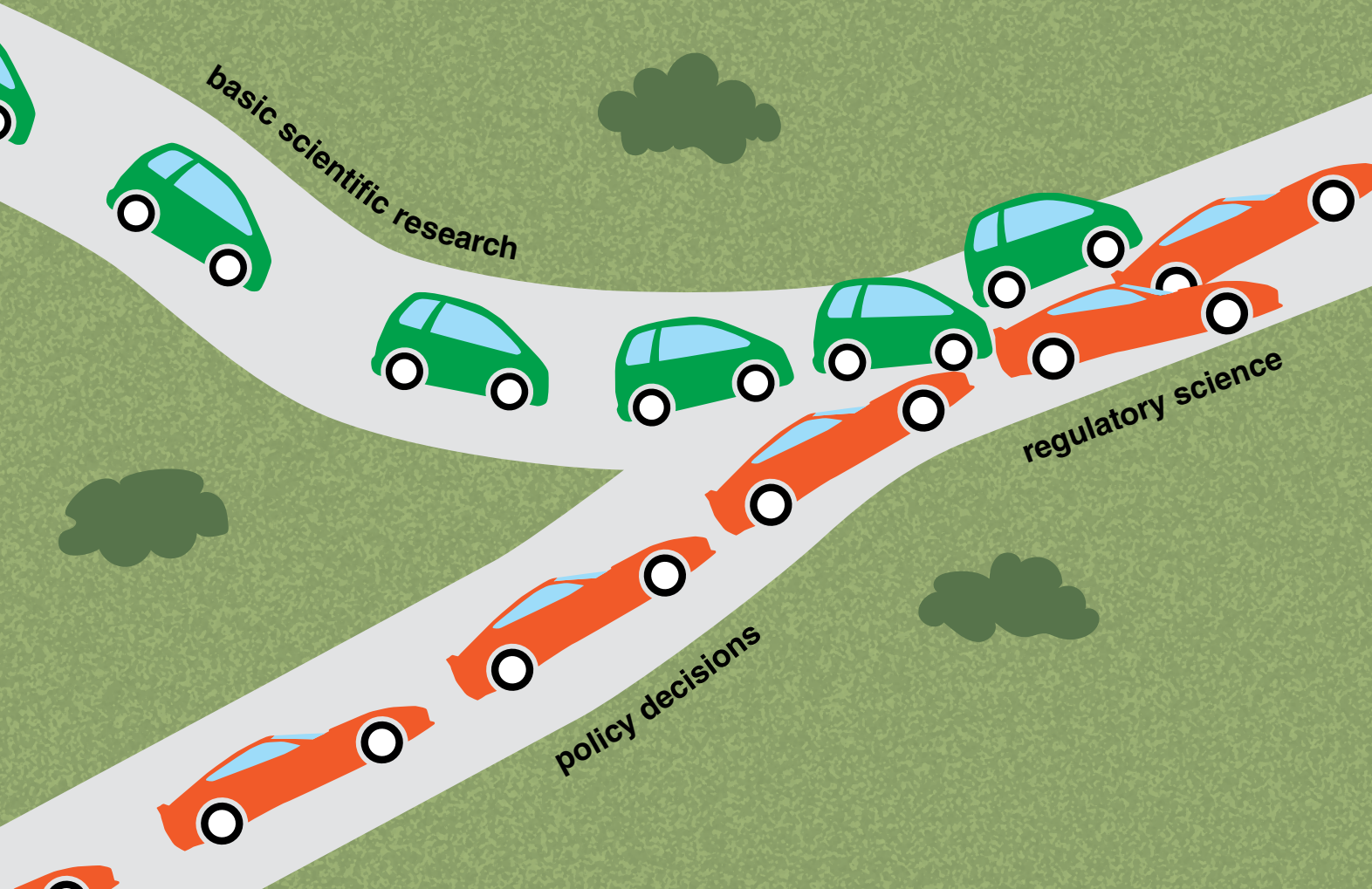
An apt analogy would be to imagine regulatory science in the middle of a three-lane highway, where cars coming from the fast lane need to merge with slow-moving cars coming from the other. Regulatory science must somehow find a way to synchronize the urgency of policy decisions (fast lane) with the steady pace of basic scientific

QUICK TAKE

National surveys in the United States say confidence in science is declining. But these surveys are premised on multiple unexamined assumptions about science and trust.

People who question science-based regulatory thresholds are not necessarily being unreasonable and do not demonstrate increasing mistrust in researchers overall.

By studying people's decisions and behaviors that indicate trust in a particular research area, the authors highlight ways to build the trust scientific institutions seek.



Barbara Aulicino

Regulations that create cutoffs or thresholds based on science are faced with the challenge of merging the urgency of policy decisions in the “fast lane” with the unhurried pace of basic scientific research in the “slow lane.” The results of basic science are revisable as further studies attempt to replicate them, whereas policymakers need to convert such uncertain knowledge into relatively fixed facts.

research (slow lane). Whereas basic scientific research delivers facts that are “open forward,” so to speak, and constantly revisable, regulatory science must somehow convert these into relatively fixed facts upon which judicial and policy decisions can be based. To do so, regulatory science typically establishes *cutoffs*, also called *thresholds* or *acceptable levels* of risk or exposure.

A *cutoff* is a conventional number, selected on the basis of past data, that aims to convert risk—a continuous variable—into a binary distinction between what is tolerable and what is dangerous. Cutoffs are often based on reviews of basic scientific research. Those findings may change over time. Once calculated, a cutoff becomes a binding convention triggering semi-irreversible policy and legal decisions. For example, at what pH is a lake considered too “acidic,” requiring environmental protection? If we see dead fish in the water, the question is settled,

but presumably we would want to act before this damage happens. Past data can be used to calculate a threshold of pH levels below which preventive actions must be taken, but once this threshold is set, it is hard to change for institutional and political reasons.

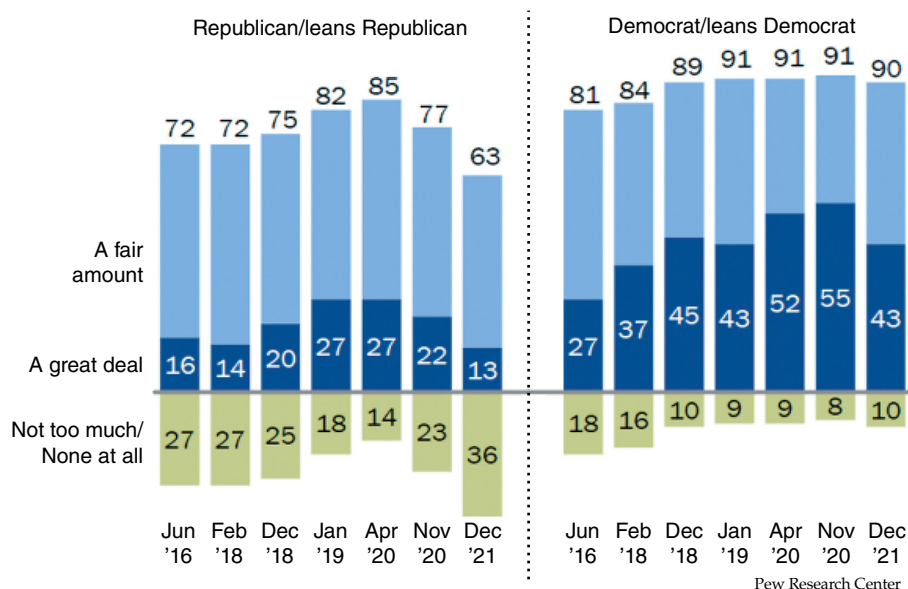
This simple example demonstrates that regulatory science cutoffs are not the same as other scientific numbers, and that they suffer from inherent challenges that make them vulnerable to mistrust: Regulatory cutoffs inevitably spell out winners and losers. If a lake is considered acidic, polluters typically have to pay fines and retool to reduce their pollution. If the lake is not considered acidic, adjacent communities may suffer the consequences of a depleted fishery without recompense.

Determining a cutoff is a probabilistic risk calculation that incorporates multiple considerations beyond the scientific facts. That calculation includes cost-benefit analysis, legal analysis,

questions of implementation, and projections about how people will react, as well as value judgments. (For example, when is acidification “damage” and when is it mere “change”?) Such ambiguities explain why in the 1980s, when the problem of acid rain was high on the agenda in North America, the cutoffs utilized by U.S. and Canadian agencies did not coincide. Canada considered a lake acidic when the pH reached 6, whereas the United States let the number drop to 5 before polluters were legally required to fix the problem.

Risk analysis balances all the different considerations by converting uncertainty into calculable risk, which requires making certain assumptions and judgment calls. These decisions may be accepted wisdom in a certain expert community, but people outside of that community may not know what was left out of the calculation. For example, early in the COVID-19 pandemic, CDC and World Health Organization (WHO) guidelines reflected expert consensus—based on past experience—that only symptomatic people were likely to be infectious. As late as June 2020, a WHO official said to Reuters that asymptomatic

Americans' Trust in Scientists



A recent survey from the Pew Research Center indicates that the number of Americans expressing “a fair amount” or “a great deal” of confidence in scientists has declined markedly during the COVID-19 pandemic, especially among Republicans. However, this survey makes assumptions about “scientists” and “trust” that pose challenges in interpretation. The authors doubt all of science is equally implicated in such results, and also question how trust is defined and measured.

spread was “very rare.” As a result, no data were collected about the potential infectiousness of asymptomatic patients, and precious time was lost in combatting the spread of the virus. Some countries, such as South Korea and Singapore, used testing aggressively and early to identify infections among both symptomatic and asymptomatic patients, thereby curbing virus spread early.

Finally, the interplay between all these factors means that regulatory cutoffs often keep getting revised. Every time that occurs, some members of the public express skepticism.

to ignorance or irrationality. That diagnosis leads directly to a prescription for more science education and more calls to “follow the science,” which appear to have achieved the opposite effect, because they are perceived as patronizing. The diagnosis seems, as a result, only to have deepened political polarization.

Questioning regulatory science cutoffs, on the other hand, is not unreasonable at all. It is the attitude of the informed consumer, because cutoffs by definition incorporate multiple considerations, assumptions, and compromises. It is not obvious that people

Multiple surveys purport to measure trust, but we think these studies often do a poor job of capturing the complexity of the phenomena involved. If a study asks about trust in “scientists,” respondents typically indicate high levels of trust. But if a survey asks about “scientists working in private company laboratories,” or even just “scientists working on genetically modified foods,” trust plummets. In one survey, conducted in Germany by Science in Dialogue [Wissenschaft im Dialog] in 2017, only 50 percent of German respondents trusted science “completely” or “somewhat.” The corresponding number in the United States at that time, collected by Pew, was 76 percent. But Germans were not, in fact, less trusting of science. The German survey question offered respondents the option to say that they were “undecided,” which 37 percent chose. By contrast, the American survey question forced respondents to choose between “a fair amount of confidence” and “not too much confidence.” Such results demonstrate both the limits of surveys and the complexity of decisions to trust scientists.

Trust surveys suffer from what the late French sociologist Pierre Bourdieu called a “common sense fallacy.” They adopt the word *trust* from ordinary language and treat it as if it represents a single, real entity. By asking respondents to say whether they trust and how much—as if they could slap a trust-o-meter on their foreheads and figure out how much of it they have—those creating the surveys employ a commonsensical understanding of trust as a subjective attitude of an individual. What these surveys ignore is the degree to which people’s responses are sensitive to context and wording—known pitfalls of surveys that are amplified when it comes to something as complex and multidimensional as trust—and, frankly, the fact that what people say and what people do may be worlds apart.

To illustrate, we conducted a survey of 334 long COVID patients, asking them to rank, on a scale of 1 (“do not trust at all”) to 5 (“trust a lot”), “how much” they trust various sources of information. As can be seen in the table on page 42, the second most-trusted source of information among all possible options was “my doctor.” Democrats ranked their trust in the CDC and Anthony Fauci, the former director of the U.S. National Institute of Allergy and Infectious Diseases, as even higher,

The need for trust arises when we lack knowledge, which means there are also good reasons for skepticism and caution.

How Surveys Measure Trust

Distinguishing between mistrust in science in general and in regulatory science in particular matters, because mistrusting science in general is an unreasonable stance. To people who are familiar with the tremendous accomplishments of scientific research, a general distrust of science seems incomprehensible, unless we attribute it

normally should trust in regulatory science. Communities of color, for example, have good reasons, rooted in history and in present discrimination, to be distrustful of decisions made by public health authorities or federal agencies about, say, the siting of hazardous materials disposal. In such cases, trust must be earned through engagement with the public.

but their numerical score for “my doctor” was not significantly different than it was for Republicans.

Unlike the common approach in most trust surveys, we also solicited personal opinions, asking respondents at the end of the survey to describe in a few short sentences “the experience of obtaining medical treatment for these long-term symptoms of COVID-19.” Seventy-nine percent of respondents reported negative and frustrating encounters with doctors. A common verb they used was being “gaslit.” It is a rule of human experience that people complain more than they praise. Still, there is no other way of parsing the numbers than to conclude that many of the same people who ranked “my doctor” as a highly trusted source of information also complained bitterly about being gaslit by doctors.

At a minimum, this result should make us wonder whether we know what we are actually measuring when we ask people in a survey whether they trust something. Clearly, part of the problem has to do with phrasing. We suspect that many respondents said they trust their doctor because of one little word: *my*. If it’s *my* doctor, how could I possibly not trust them? Or vice versa: If I don’t trust them, how are they still “my doctor”? However, when given space to be more specific, our respondents appeared much less trusting of doctors in general. This example illustrates a broader set of problems that beset all trust surveys.

First of all, survey responses may suffer from a so-called *social desirability bias*. Even when a survey is not filled out face-to-face, respondents might calibrate their answers to appear reasonable or consistent to an imagined audience. Studies have shown that slight changes in the wording of the questions can have a big influence on this bias.

Respondents are also influenced by the awareness that they are being measured. When Democrats were asked whether they trusted Fauci and the CDC, they could have easily imagined the next day’s headlines reporting on the survey’s findings, and their responses may have been affected.

Surveys may also get conflated results. Asking about trust in *X*, assumes that *X* is a discrete entity in the minds of respondents. But trust and mistrust have a contagious quality, which means that when you ask about *X*, you may get an answer about *Y*. In 1998, Monsanto

conducted a survey of the British public’s attitudes toward genetically modified (GMO) foods. British respondents trusted GMOs, until they were told that “the British government has stated that it was satisfied that the product was safe.” After that disclosure, the respondents’ trust levels fell sharply. Mistrust of the British government had infected the previously trustworthy GMOs.

Surveys rely on discrete divisions that don’t always reflect the ways people commonly think. Surveys typically employ a five-point scale, requiring respondents to rank their trust as ranging from “a great deal,” through “a fair amount,” to “not at all.” This setup constructs trust and mistrust as strict opposites, when in reality they often

take a commercial flight, we trust—in the pilot, in the aircraft, in the Boeing company, in the U.S. Federal Aviation Administration, and in materials engineering. Do we have a choice?

In Luhmann and Giddens’s analysis, trust is also not an individual attitude, but a collective social fact. Each individual trusts by observing that others trust. Nobody trusts alone. Moreover, trust is inescapable. Even mistrust simply means trusting something or someone else. Trust is the essential grease that makes a social system function, by reducing the complexity and cost of choosing between alternative futures.

At the individual level, however, trust is akin to a leap of faith. We could come up with all sorts of reasons why it

The most credible and successful users were those who were able to find resonance between personal experiences and reports from the scientific literature.

come bundled together. The need for trust arises when we lack knowledge, which means that there are also good reasons for skepticism and caution.

But the *coup de grâce* for trust surveys is that what people say in their answers may be worlds apart from what they do in other situations. People may mark “not at all” in response to a question about their trust in government experts. Yet, every morning, they faithfully count their pills and take their FDA-approved medications. Which should count more as evidence of their true level of trust? Answers to surveys often vary over time, even flip-flop depending on context and wording. Changes to the behavioral aspects of trust, on the other hand, are slower and rarer.

Trust as a Skill

If what people do contradicts what they say, perhaps we can ignore what they say. Along those lines, a different sociological approach to trust does not set much score by surveys. For social theorists Niklas Luhmann and Anthony Giddens, trust is not a clearly formulated attitude, but more like a tacit acceptance of circumstances that are beyond one’s control. Whenever we

is rational to trust the airline, but each of these reasons can be countered with further skepticism: Have we seen technicians inspecting the aircraft? What if they did a poor job? Even if they did their very best, this plane could be a redux of the Boeing 737 Max. In the two crashes in 2018 and 2019, even the pilots of the aircrafts were unaware of the hidden system feature that led to disaster. Giving reasons and counter-reasons is a bottomless chasm. The only way to trust is to take a leap of faith across.

Although the Luhmann–Giddens approach is more insightful than the commonsensical understanding of trust in surveys, it suffers from a mirror-opposite problem: To characterize trust as a leap of faith is to stray far from the ordinary experience of trusting. It might have felt like a leap of faith the first time we flew, but very few people feel that way routinely. If told to take a leap of faith, we would probably demur. Our ability to trust rests on repetition, on experience, on the length of time that has passed, and on the organization of the scene. No one comes out of the cockpit and says, “Trust me!” If they did, trust would disappear. Trusting is a learned skill that is highly

context-dependent. It is also highly dependent on the element of time.

The learned skill of trusting involves close attention to speed, timing, sequence, and duration. Trust given too quickly is judged as imprudence rather than a legitimate response. People seek to exhibit to others (and convince themselves) that their trust is responsibly given through careful deliberation. Almost all cultures have some proverb about trust taking “years to build, seconds to destroy, and an eternity to regain.” The first part of the proverb is about duration and speed. The second part is about sequence and timing. Sequence matters enormously. Trust does not behave statistically. You do not gain trust by protesting that “99 percent of the time I told the truth,” right after being caught in a lie. You’d need a long period of penance to regain trust.

Like most sociological phenomena, trust is slippery and hard to define. But we know that trust isn’t a “leap of faith,” and it isn’t identical to whatever people say in surveys. Instead of trying to get at the essence of trust, we can focus on *trusting*—something that we can actually observe and study. Namely, how do ordinary people make the distinction between responsible, legitimate, well-founded trust, and illegitimate, unthinking faith that should be shunned?

Instead of studying trust directly, we propose that it is far more sensible to study *trust methods*: the gamut of heuristics, ad hoc tactics, narrative devices, and situational and temporal details that people draw upon to convince themselves and others that their trust is legitimate, whether they are boarding an airplane or getting a COVID-19 vaccine.

Studying Trust Methods

Studying trust methods offers insights into the aspects of trust that concern scientific institutions. By asking whether the public mistrusts science, many studies begin from the assumption that trust is the default, while mistrust is

Information source	U.S. sample (n=334)	Republican subsample (n=50)	Democrat subsample (n=167)
CDC	3.52	2.76	3.93
Dr. Anthony Fauci	3.48	2.23	4.22
my doctor	3.88	3.98	3.86
CNN/MSNBC	2.52	1.73	3.09
Fox/OAN	1.71	2.53	1.48
NYTimes/WashPost	2.96	2.09	3.64
WSJ	2.70	2.04	3.24
local news	2.85	2.52	3.18
Twitter	2.46	2.00	2.79
Reddit	2.75	2.26	2.97
Facebook	2.36	2.55	2.43
Instagram	2.27	2.29	2.48
online patient groups	3.55	3.38	3.63
friends/family	3.12	3.00	3.17
my own research	4.18	4.20	4.16
my political leaders	2.26	1.76	2.71

Data from the authors, design by Barbara Aulicino

Survey results of 334 long COVID patients, on a scale of 1 (“do not trust at all”) to 5 (“trust a lot”), show many nuances about trust in sources of scientific information during the pandemic. The second most-trusted source was “my doctor,” even though more than three-quarters of respondents also reported negative encounters with doctors.

what needs to be explained. Instead, we begin with an assumption that trust in science cannot be taken as the default, but needs to be explained with the same tools that we use to explain mistrust in science. These tools should be able to make sense of the attitudes of “anti-science” doubters, as well as those of readers of this article. (We are making the fairly safe assumption that those readers tend to trust science.) Each group can be understood as employing trust methods, which nonetheless lead them in different directions, yet both are concerned with appearing as trusting responsibly.

To study trust methods, we conducted follow-up interviews with 91 individuals from our initial long COVID survey. The interviews elicited how people talk about who, what, when, and how they trust. Because “my own research” was ranked in our survey as the most trusted source of information, we focused in the interview on how respondents evaluated the trustworthiness of the information they found online. Respondents were keenly aware

that they might be seen as people who believe everything they read on social media. In response, they sought to present themselves as responsible and hard-nosed researchers who employed multiple checks and cross-references. For example, one respondent said, “I go only to really good sources and peer-reviewed articles,” and another said, “Until I see it from *JAMA* or *ATS* or *Chest* or *Lancet* . . . I don’t usually put tons of faith in it.” In short, they presented their trust as well-founded and carefully curated.

These quotes demonstrate the very first, outer layer of our interviewees’ trust methods. If things were so straightforward, trust methods would be just scripts or recipes that could easily be taught to people to inoculate them against misinformation. But things are not so simple. What happens when a “really good source,” such

as an article in *JAMA*, is contradicted by another “really good source,” namely another article in *JAMA*? Which should you trust? You can read further and follow the citation trail, but you may quickly discover even more uncertainties and unresolved disputes. One of our interviewees, Amanda (a pseudonym), a stay-at-home mother whose husband was the director of emergency medicine at a local hospital, summed up this experience with an apt phrase: “They send you down research rabbit holes, you know, reading as much as you can.”

To study trusting is to study precisely how people like Amanda stop the descent into these research rabbit holes. Her case is not an outlier. The rabbit hole is the same bottomless chasm of reasons and counter-reasons we are avoiding every time we board an airplane. But the answer clearly cannot be a “leap of faith.” Amanda and the other respondents were concerned to demonstrate that they do not believe everything they find online, that they trust responsibly, and that they do not leap to put faith in one source over another.

We found that our interviewees typically stopped their descent by drawing on various heuristics, ad hoc tactics, and narrative devices. These methods are not in the form of a rule or script; rather, they are more context-dependent. Our interviewees had to assess the details of the situation before they would decide how to trust responsibly. During her online search, Amanda came upon the theory that long COVID is caused by the activation of dormant Epstein-Barr virus (EBV). She said to us, "That was a really, really big one for me, because it was something I could have hung on to." She'd had mononucleosis as an adolescent, which is caused by EBV, and so she thought this theory could apply to her. Reading more online, however, she discovered that the theory was controversial. Some "really good sources" supported it, but other medical researchers doubted it. Amanda worried that if she believed the theory, she would be committing the same fallacy as the people who trust whatever newfangled theory they read on the internet because it suits them or resonates with their experience.

At about the same time, unrelatedly, Amanda joined a Facebook group for long COVID patients. In the group, she found several women who, like her, were middle-aged, had contracted mononucleosis in adolescence, and now suffered from long COVID. This clinched it for her. She asked, rhetorically, "What are the chances that there would be this kind of coincidence?" For months, she had refrained from asking her doctor to test her for EBV, perhaps worried that she would appear gullible. Now she asked for the test, and it returned positive and showed "off the charts" traces of activated EBV. At the time of our interview, Amanda still had significant long COVID symptoms and had begun a course of antivirals on the basis of the EBV theory. She thought it "has the potential of being life-changing." She clearly had hope and was convinced that her trust was responsible, although she acknowledged that her "husband's entire family think I am a whack-a-doodle." We do not know whether the course of treatment, that was to last a year, was successful.

What can we learn about trust from this case? First, how to trust responsibly was not apparent in advance. Amanda had to discover how to trust



Barbara Aulicino

In the same survey of 334 long COVID patients, when respondents were asked to briefly describe "the experience of obtaining medical treatment for these long-term symptoms of COVID-19," 79 percent recounted frustrating visits with doctors. The most common term they used was feeling "gaslit."

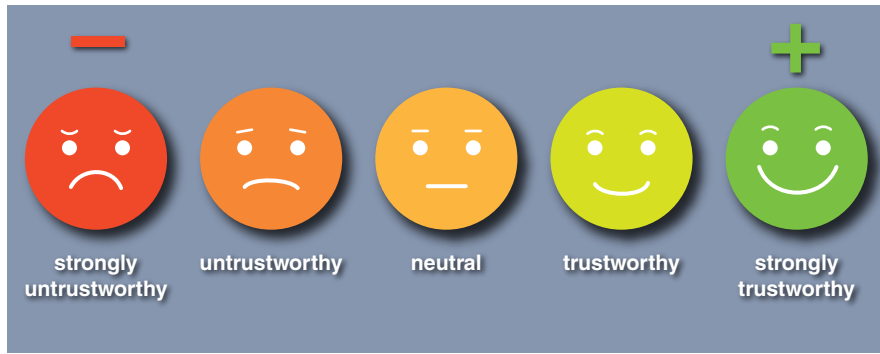
responsibly by paying close attention to context and sequence. For example, if the sequence had begun with Amanda first joining the patients' group, and only later reading about EBV, then the encounter with the patients who shared her history would have lost its dramatic effect as a new discovery that got her wondering, "What are the chances?" Similarly, if the test had not come at the end, it would have lost its status as a clincher providing final confirmation. After all, it is not surprising that Amanda's levels were high given that she'd had mononucleosis in the past. Amanda's story underlines the work required to convince oneself and others that one's trust is responsible.

Finally, doctors often worry that patients put too much value in personal stories. Superficially, Amanda's case could be interpreted in this way. But on closer examination, that is not how we interpret it. If one considers Amanda's careful research online, as well as her search for additional ways of weighing conflicting evidence, she and our other respondents appear quite thoughtful about when and how to give added weight to anecdotes. Indeed, many of our interviewees reported quitting patients' groups, sometimes because they found them to be too whiny, and

often because they did not trust the anecdotal information circulating there. Ultimately, how to trust other patients responsibly is a problem not altogether different from the problem of research rabbit holes, and people similarly attend to context and sequence to do so.

Context and Sequence

To show that people attend to sequence and context when deciding to trust, we designed another study that observed how attributions of trustworthiness change over time. From March to May 2020, we monitored discussions on an online forum called *Covid-19 Together*, where people recently diagnosed with COVID-19 came to find information, advice, or commiseration. As in many other online forums, participants could upvote or downvote posts, thus offering an approximate measure of attributed trustworthiness. In the first part of the study, we looked simply at which posts were likely to be among the top 1,000 upvoted or the bottom 1,000 downvoted. Personal anecdotes made up the bulk of the former, whereas posts referencing scientific articles appeared frequently among the latter. That pattern might seem to indicate that people trust personal stories more than they do hard-nosed scientific studies. Yet there



Barbara Aulicino

The five-point scale used in many surveys for assessing all sorts of subjective experiences, including pain and trust, relies on discrete divisions that don't necessarily reflect the ways people commonly think. Although there are valid reasons to use this scale, a downside of using it to measure trust is that it constructs trust and mistrust as strict opposites, when in reality they often work together.

were also plenty of personal anecdotes that were deemed untrustworthy. If you tried to tell a personal story to make the point that COVID-19 was not serious, you'd quickly find yourself downvoted many times. At the same time, there were many "scientific" posts that were among the upvoted. Evidently, there were more subtle evaluations of trust at work.

In the second part of this study, we looked not at posts, but at users. We selected the top 100 most active users and traced their trajectory on the site by skimming their posts, with attention paid to high- and low-scoring posts at the beginning, middle, and end of a user's posting career. This methodology enabled us to observe how trustworthiness is accrued or lost over time. What makes a personal anecdote trustworthy or not, we discovered, is strongly influenced by the sequence of communications.

We found that a specific sequence was common to those users whose posts were consistently upvoted.

Only in this way could they establish commonality. On the other hand, users who immediately tried to tell others what they'd learned from the literature were downvoted and disliked—nobody likes a know-it-all. Users whose anecdotal stories lacked attunement to the stories told by others were looked upon with suspicion, and their authenticity was questioned.

Only after someone had established their "creds" could they start to incorporate references to the scientific literature. The most credible and successful users were those who at this stage were able to find resonance between personal experiences and reports from the scientific literature. This finding confirms that trust is highly dependent on how interactions unfold in time: Sequence and timing clearly made the difference between trustworthy and untrustworthy in this case, but duration and speed were also important. Nobody became trusted right away. They had to put in the time posting and responding over months before they were trusted.

Current efforts to combat mistrust are likely counterproductive.

They did not begin their posting career by immediately citing scientific articles, however well supported, but by establishing a similarity of experience, which involved asking questions about the experiences of others and posting about one's own illness experiences—at the correct moment, when it was relevant and resonant.

The main limitation of the findings reported here is that they were collected during a time of high uncertainty, from people who were navigating a new and unfamiliar situation. Yet even in the most routine, ordinary situations, people are still concerned to present themselves as trusting responsibly, and that kind of trusting is still a skillful act—it's

just that the skill has been "automated." The unnoticed work of trusting is made possible by preexisting, taken-for-granted, collectively shared *frames*, namely a set of conventions, usually conveyed through the arrangement of a situation, that provide a ready-made answer to the question, "What is it that's going on here?" For example, a stage and props frame whatever happens as a play, and not as real life.

When parents bring their children to the pediatrician, they enter such a frame: the careful spatial separation between waiting room, examination room, and doctor's office, which is also a separation of roles, activities, and information; the temporal framing of the "routine well-child visit"; and, in New York City at least, the yellow "lifetime health record" card on which their children's vaccinations were noted alongside head circumference, height, weight, and so on. The card framed vaccination as a "developmental milestone," a gradual step in the routine and necessary process of child development, and not at all as a matter of decision and choice.

That this treatment of vaccination is also a trust method, albeit routine and tacit, becomes evident when it can be thrown off course by relatively small changes in the temporal arrangement of the frame. When a vaccine is framed as a choice and a decision, the way the vaccine for the seasonal influenza and COVID-19 boosters are framed, vaccination rates decline.

Trust Methods in the 21st Century

Regulatory science is not only more vulnerable to mistrust, but modern trust methods are also more dependent on regulatory science. The numbers it produces have worked themselves into our everyday practices for recognizing and exhibiting that we are trusting responsibly (30 seconds hand-washing, the first mammogram at 40 years old, and so on.) Consequently, when these numbers change, the shift is not a mere inconvenience. Rather, the changes can threaten our everyday cosmology and our vision of what is the right order of things.

How disruptive these changes are depends on time: How quickly do the changes follow one another? Are they introduced gradually or abruptly? Do they follow right after a statement expressing confidence in the previous number? Although regulatory science

agencies have developed ways to dramatize and focus attention on careful deliberation, even very small disruptions can destroy the careful orchestration of trust. If indeed there has been a decline in trust in regulatory science during the pandemic, it was at least partly due to the accelerated schedule and awkward sequencing (in other words, flip-flopping) of issuing guidance. (See “A Pandemic of Confusion,” November–December 2020.)

Scientists, regulators, and policymakers could bolster trust in regulatory science by learning about the trust methods that ordinary people employ, then designing trust-building programs that are attuned to these—a goal that indeed seems high on the agenda of the new CDC director, Mandy Cohen.

Trusting is a skill that involves close attention to time. So, trust-building programs through regulatory science agencies, hospitals, and public health departments need not follow the results of the latest survey. On the contrary, they must convey the message that they are in it for the long haul. For example, they could hire community members and create local offices exactly where mistrust tends to run high. The staff of such programs would also need to cultivate a “feel” for correct sequencing and timing. For example, although taking time to deliberate is a virtue in trust building, it is ruinous when an apology, correction, or disclosure is needed.

A great deal of effort is currently expended on “combating mistrust.” We think that this effort is likely counterproductive. People’s trust methods always involve a healthy dose of mistrust. Combating mistrust, even under the guise of science education, comes off as patronizing and usually backfires. Instead of combating mistrust, we think that even those who seem unpersuadable could become more amenable in the long term if we equip them with the narrative resources they need to convince themselves and others that their trust, though perhaps conditional, is responsible.

In doing so, we strongly believe that there is no way around dialogue, public engagement, and participatory forums. During both the 2019 measles outbreak and the height of the COVID-19 pandemic, the New York City Department of Health organized public town hall meetings and hired trusted members of local communities. The result was an uptick in vaccination rates among



In follow-up interviews with 91 individuals from their original survey of long COVID patients, the authors sought to understand who, what, when, and how respondents decided to trust information about their condition. Each respondent was keenly aware of demonstrating how carefully they assessed information, despite having to make decisions about trust in an uncertain situation.

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communities that exhibited low levels of trust to begin with. Such endeavors are tricky to accomplish, because people’s trust methods are exquisitely sensitive to small organizational details: Who invites whom? Who is allowed to speak and for how long? How much time is allotted for consultation before a decision must be made? These details should never be an afterthought.

Finally, trust is typically at least a three-way relationship, and it is won and lost at the “access points” of expert systems. Between scientists or regulators and the general public, there are usually mediators and front-line professionals, whose demeanor and conviction play a central role in individuals’ trust methods. These nurses, physician assistants, local health department officials, and especially community health workers are often unglamorous and underpaid. If we want to cultivate trust in the medical system, we could hire more community health workers, pay them better,

and, importantly, give them a genuine role in decision-making.

Bibliography

- Au, L., C. Capotescu, G. Eyal, and G. Finestone. 2022. Long COVID and medical gaslighting: Dismissal, delayed diagnosis, and deferred treatment. *SSM – Qualitative Research in Health* 2:100167.
- Au, L., and G. Eyal. 2021. Whose advice is credible? Claiming lay expertise in a COVID-19 online community. *Qualitative Sociology* 45:31–61.
- Kennedy, B., A. Tyson, and C. Funk. 2022. Americans’ trust in scientists, other groups declines. Pew Research Center (February 15). [pewresearch.org/science/2022/02/15/americans-trust-in-scientists-other-groups-declines](https://www.pewresearch.org/science/2022/02/15/americans-trust-in-scientists-other-groups-declines).

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