Living with Blur

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What happens when you no longer believe in scientific findings could be seen recently in Texas.

Because fewer and fewer children there are being vaccinated against measles, there have recently been mass outbreaks of the infectious disease, which had been largely eradicated through vaccination programs.

For the first time in ten years, there were even two deaths from measles in the USA.

Antiscientism is deadly. Not only in epidemics and pandemics, but also in the escalating climate crisis, as the increasing frequency of extreme weather events shows.

It is also clear that antiscientific sentiment is often linked to right-wing populism, which is currently gaining influence worldwide. In the USA, it is currently becoming the government policy under Donald Trump. What is less clear, however, is what can be done to counter this anti-science sentiment.

"Following the science" was a demand repeatedly voiced during the coronavirus pandemic.

Today, it must be acknowledged that it has not solved the problem.

The American journalist David Frum recently wondered in The Atlantic how it could come about that the "COVID deniers" in America can be seen as winners, with Robert F. Kennedy even becoming the Secretary of Health. Frum also diagnosed the scientific experts themselves as partly to blame. Their advice, he said, was not always free of political motives. For example, scientists had hardly criticized the mass protests of the Black Lives Matter movement – ​​after previously advocating a ban on large-scale events. Similar accusations were made in Germany: experts were all too willing to endorse political decisions in favor of harsh measures. But if research itself is perceived as political, can it serve as a neutral authority for setting societal course? And what understanding of science do the public, politicians, and researchers themselves need in order to work together successfully on solutions in the future?

Looking back on the pandemic, it becomes clear that there were actually (at least) two major misunderstandings about how science works, what it can achieve, and how it should be followed.

First misunderstanding:

Science produces eternal,

undisputed facts

From the very beginning, the complexity of a pandemic was underestimated. There were countless relevant factors interacting with each other, and many different levels of consideration (epidemiological, social, political, etc.) – and all this in a dynamic context. The mood among the population changed, the virus mutated, and politicians adjusted their measures. While there was usually much debate about many things, here there was agreement: the situation was confusing. The pandemic shared this characteristic with other major societal challenges. Climate change and the management of diverse ecosystems are also complex in this sense. The American philosopher of science Sandra Mitchell has been warning for many years that such problems require a new understanding of science in politics and among the public. In her 2008 book Complexities, she wrote: "If we want to understand and manage complex systems, we must rethink our concept of cognition and action."

What Mitchell means by this:

In such systems, it no longer works to make long-term forecasts and only make decisions once all uncertainties have been resolved. First, because there will always be uncertainties in these systems. And second, if you wait too long, it's too late. Instead, you have to keep many possible scenarios in mind and flexibly adapt your actions in light of new information:

So, error is part of the strategy.

"This was confusing for the public during the pandemic," says Mitchell.

"There persists the idea that science discovers things that are true now and forever." Such an image of science, however, dates back to the 18th and 19th centuries – when Newton described the mechanisms of the movement of celestial bodies and Pierre-Simon Laplace dreamed of being able to mathematically predict the entire course of the world. At that time, universality, determinism, simplicity, and uniformity became hallmarks of reliable knowledge, according to Mitchell. Today's science can rarely deliver that. "Yet there is still this idealized image of research, and there are scientists who think they strengthen their authority by defending it." In fact, however, this narrative achieves the opposite. Because when scientists disagree and have to correct themselves, it immediately creates mistrust. Are masks useful or dangerous? Does vaccination protect against infection or not? Especially when the application of controlled experimental results from the laboratory to the complex, constantly changing real world didn't work so easily, problems arose when the simplistic demand was made: "Follow the science."

Accordingly, good science during the pandemic could not be anything other than provisional and open to dissent. But could it also be political?

Second misunderstanding:

Science is neutral and value-free

The question of the value-free nature of science was, alongside the uncertainties and changes of opinion, another point that sparked intense discussions during the pandemic. A recurring criticism was that empirical science could only describe how things are, but not say how they should be – that is what politics does. The Italian scientist Andrea Saltelli has repeatedly emphasized this point. "Science is useful, but if you claim that measures follow directly from science, then people lose trust," he says.

In order to derive measures, it must be clear what you actually want to achieve: Do you want to protect human lives?

Prevent mental disorders in children and adolescents? Avoid economic losses? Infect the population? Which goals should be pursued is a political decision that must be discussed socially. Interests must be balanced, and questions that affect many different disciplines and perspectives must be answered (see interview on the next page).

Numerous politicians have used the slogan "Follow the Science" to shift responsibility, says Saltelli. He and his colleagues have written a book about the political use of simulations and models. "Politics is very complicated," he says. "You constantly have to negotiate with different groups and are confronted with contradictions. So it's nice to be able to say: Look, I have a mathematical model here, a clean, rational tool for solving problems." What is often forgotten, he says, is that models abstract and simplify. That they contain assumptions and judgments. And that they ignore perspectives and information from other scientific disciplines.

Furthermore, sociology has long established that even scientists are not completely neutral. They are just as much sons, mothers, voters, or stock owners as other people. Or even activists. Even more than the pandemic, the climate crisis is revealing in this regard. It has produced climate scientists who are also politically active. One example is the group Scientist Rebellion, whose members have, among other things, publicly blocked banks that invest large amounts of money in oil exploration.

There is also a tendency within the climate movement to enforce political demands by appealing to science. "Physics is not negotiable. You cannot compromise with nature," explained climate scientist Mojib Latif. While this is true, it suggests a false sense of clarity. Regarding the question of when and which effects can be expected (such as reaching tipping points), there is a wide range of different research findings. Latif's statement fails to recognize that, ultimately, it is a question of political negotiation: how much global warming this world is willing to live with. This is where different interests and values ​​come into play. And like any other negotiation process, the climate crisis will produce winners and losers. Because researchers cannot automatically be viewed as neutral and value-free, it is fundamentally legitimate to critically question their motives and interests. The scientific philosopher Saltelli therefore recommends transparency to researchers themselves: Disclosing interests where they affect research, instead of pretending to be pure spirit. But if research can be distorted by vested interests, how is it that scientific results are nevertheless usually more robust than non-evidence-based claims? To understand this, one must distinguish between individual researchers and science as an activity. "It's not about the authority of scientists. It's about the authority of the scientific method," says Sandra Mitchell. This method makes it possible to generate robust knowledge, even when scientific practice exhibits flaws and distortions. For example, by eliminating individual errors and interests through constant discussion and peer review – thus succeeding in coming close to the ideal of neutrality and objectivity. It helps in this regard if as diverse backgrounds and perspectives as possible are represented within science itself. The more pluralistic the perspectives, the more robust the results in the end. That's why it's bad news that diversity programs in research are being abolished in the US under Trump. These cuts are not just an attempt at clientelist politics, but an attack on science. From Trump's perspective, there are probably good reasons for this:

Quality, diverse, transparent, free Science, as Saltelli and Mitchell envision it, is a cornerstone of democracy because it aims at the interests of all and is directed against the interests of the few. It is incompatible with authoritarianism and oligarchy.

The Dilemma

Here, however, all those who want to defend science find themselves in a dilemma: Anyone who claims that science is infallible and fundamentally neutral is quickly refuted by reality. Anyone who admits that scientists can be wrong and are people with vested interests makes themselves vulnerable. This is no small risk today when right-wing populists use every means possible to undermine the authority of science—for example, attempting to portray climate scientists as henchmen of the wind and solar industries.

But is it even true that right-wing populists are succeeding with their pseudo-skepticism? Or is this just a claim made by many media outlets? Just at the end of January, a survey on "Trust in Science" was published in the journal Nature Human Behavior. Around 72,000 people from 68 countries participated. The result: Almost everywhere, the majority trust scientists and their methods. Furthermore, respondents expressed a desire for greater participation by scientists in political processes. The result is essentially consistent with data from the Science Barometer in Germany. In 2024, 55 percent of respondents in this country trusted science and research "completely" or "somewhat." The figure remained stable compared to the previous year and slightly above the pre-pandemic level.

This is not surprising. The fact that the pandemic was overcome relatively quickly was largely thanks to science: It decoded the genome of SARS-CoV-2 within a very short time, developed tests, and finally the vaccine. This can be acknowledged – without having to give up a differentiated view of scientific practice and its communication.

Because clearing up these two misunderstandings ultimately also offers an opportunity, especially for climate science, which is about everything and is accordingly contested: Instead of continuing to claim that there is no alternative with the slogan "Follow the Science," the climate crisis could be repoliticized. The debate would then no longer be: What do we need to implement and how quickly?

But rather: In what kind of world do we want to live? "It's dangerous to oversimplify things.

People

can

deal

with complexity,"

says Sandra Mitchell.

This

approach

requires

courage. But

it

could

be

worth it.

Image: Are masks useful as protection against COVID or not? During the pandemic, it became clear

that even among scientists there is not always agreement.