

How Science Education Can Stave Off Demagogues

By Leroy Hood and Matthew D. Laplante
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As we turn the page to new political leadership in this nation, it will be tempting to treat what happened in the past four years as a bad dream.

We can't allow that to happen. Our four-year exposure to an increasingly viral demagoguery demonstrates that those who seek power by inflaming prejudices and rejecting fact and reason pose an existential danger to our democracy.

The insurrection at the U.S. Capitol on Jan. 6 confirmed this for many people, but in truth it was clear all along — and should have been clear to every one of us by Feb. 27, 2020. That was the day that Donald Trump promised not just a speedy resolution to the COVID-19 crisis, but a magical one. "One day, it's like a miracle," he said. "It will disappear."

Trump's earlier statements can charitably be said to have been made in the fog of uncertainty about the virus, its trajectory and its danger to human lives. But there is absolutely no question that, by the time Trump promised a "miracle" was forthcoming, scientists had been warning him that the virus was in this country, it was spreading, and it was deadly. Yet in the weeks to come he continued to promise that "it'll go away" (it didn't), that "anybody who needs a test gets a test" (they couldn't) and that "I really get it" (he most certainly did not).

Trump has claimed he was simply trying to prevent panic. Behind the scenes, he has implied, he was taking the threat seriously all along. His actions prove otherwise. Both in policy and personal practice, he ignored and even mocked the

scientific recommendations for controlling the pandemic — including masks, distancing, tracking the infected and frequent testing. The result is a nation that accounts for 4% of the world's population, but about 20% of global COVID-19 deaths.

Thanks not to miracles but to science, this pandemic won't be with us forever — but demagoguery will. Demagogues have surfaced in democracies since ancient Athens. They tell lies to stir up hysteria. They exploit crises to intensify popular support for their ever-increasing authority and accuse opponents of weakness or disloyalty to the nation. In doing so, they sow a degradation of confidence in expertise, the news media and science — the phenomenon





of “truth decay,”¹ as described by the political science scholars Jennifer Kavanagh and Michael Rich.

Truth decay is marked by an inability of opposing sides to agree on common facts. Left unchecked, it forms the environment needed for demagogues to metamorphose into authoritarians. This is the darkness in which democracies actually die.

Our republic has stood up to this test — thus far, at least. But the fact that the United States has managed to elude the worst consequences of truth decay does not mean we haven’t been on the slippery slope, many times over — and it does not prevent us from landing there again.

What might save us? Some might say “civics.” We, however, would say “science.”

Only about a third of Americans say they trust elected officials. Just around half say they trust business insiders, the news media, and religious leaders. On the “trustiest” side of spectrum, however, it is well known that the military enjoys great support

among Americans; as of 2019, about 82% of adults in the U.S. said they had confidence that members of the nation’s armed forces act in the best interests of the public, according to the Pew Research Center.²

Less known is the group that scores highest when pollsters seek to measure trust: That would be scientists, at 86%, according to Pew’s surveys.

There are partisan divides. Democrats are far more likely to say they have a “great deal” of trust in science than Republicans. But 82% of Republicans attest to at least “a fair amount” of trust in science. That is almost the same percentage of GOP members who said they believed Trump was trustworthy — 83% just prior to the 2020 election, according to Gallup.³

That’s right: Republicans trust scientists as much as they trust a man who, throughout the COVID-19 crisis, presided over an executive branch that silenced and disregarded government epidemiologists while openly flouting basic public health measures. If that was Trump’s only offense, it would be enough,

but he also trafficked in climate skepticism, vaccine denialism and carbon apologetics. His administration rolled back laws limiting pollution and eliminated regulations protecting people from exposure to dangerous chemicals.

Some might see this as a perplexing duality among Republicans. In fact, it can be an opportunity. Even in a deeply polarized country where “alternative facts” have infected a lot of political discourse, most people have retained an innate sense that they can rely on scientists, who have dedicated their lives to observation, logic, facts and transparency. These are the qualities it takes to combat truth decay.

The questions of scientific inquiry — what do we know? how do we know it? how can we prove it? — when applied to the words of a demagogue can be an inoculation against authoritarianism.

When we teach science, technology, engineering and

mathematics to young students — and embrace innovative new approaches to the teaching of these subjects — we are investing in the long-term well-being of our economy, national security and health. But more than that, science education is a bulwark against the sort of rank populism that sets people against one another.

It unites us with a common strategy for identifying facts and a common basis for communicating about perceived problems and potential solutions. This does not mean we will not disagree — scientific debate can be a brutal thing — but it makes meaningful debate possible.

This does not just prevent demagogues and authoritarians; it suffocates them, leaving them unable to find a foothold when citizens demand facts over fanaticism and esteem knowledge over power.

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SOURCES

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2. <https://www.pewresearch.org/science/2019/08/02/trust-and-mistrust-in-americans-views-of-scientific-experts/>
3. <https://news.gallup.com/poll/321695/americans-view-biden-likable-honest-trump-strong.aspx>

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Leroy Hood, a world-renowned scientist and recipient of the National Medal of Science in 2011, Dr. Leroy Hood co-founded the Institute for Systems Biology (ISB) in 2000 and served as its first President from 2000-2017. In 2016, ISB affiliated with Providence St. Joseph Health (PSJH) and Dr. Hood became PSJH's Senior Vice President and Chief Science Officer. He is also Chief Strategy Officer and Professor at ISB.

He is a member of the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Medicine. Of the more than 6,000 scientists worldwide who belong to one or more of these academies, Dr. Hood is one of only 20 people elected to all three.

He received his MD from Johns Hopkins University School of Medicine and his PhD in biochemistry from Caltech. Dr. Hood was a faculty member at Caltech from 1967-1992, serving for 10 years as the Chair of Biology. During this period, he and his colleagues developed four sequencer and synthesizer instruments that paved the way for the Human Genome Project's successful mapping and understanding of the human genome. He and his students also deciphered many of the complex mechanisms of antibody diversification. In 1992, Dr. Hood founded and chaired the Department of Molecular Biotechnology at the University of Washington, the first academic department devoted to cross-disciplinary biology.

Dr. Hood is currently carrying out studies in Alzheimer's Disease, cancer, and wellness. He is pioneering a 1 million patient genome/phenome project for Providence St. Joseph Health and is bringing scientific (quantitative) wellness to the contemporary U.S. health care system.

Dr. Hood has played a role in founding 15 biotechnology companies including Amgen, Applied Biosystems, Arivale, and Nanostring. He has co-authored textbooks in biochemistry, immunology, molecular biology, genetics, and systems biology.

In addition to having received 18 honorary degrees from prestigious universities in the U.S. and abroad, Dr. Hood has published more than 850 peer-reviewed articles and currently holds 36 patents.

Dr. Hood is the recipient of numerous national and international awards, including the Lasker Award for Studies of Immune Diversity (1987), the Kyoto Prize in advanced technology (2002), the Heinz Award for pioneering work in Systems Biology (2006), the National Academy of Engineering Fritz J. and Delores H. Russ Prize for developing automated DNA sequencing (2011), and the National Academy of Science Award for Chemistry in Service to Society (2017).