Ellen Fraint holds her daughter, seven-month-old Jojo, as she receives the first dose of the Moderna COVID-19 vaccine for children at Montefiore Medical Group in the Bronx borough of New York City on Tuesday June 21, 2022. Associated Press/Ted Shaffrey

Why investment in the social sciences is critical to public health

BY RICHARD SCHEINES

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"We got the biological science right, but we didn't get the social science right."

That poignant assessment of the U.S. response to the pandemic by White House Coronavirus Response Coordinator Ashish Kumar Jha at the Aspen Ideas Forum captured the sharp contrast between the remarkable success in the rapid development of vaccines and the persistent challenges in communicating health information to the American public — challenges that ultimately increased suffering.

Carnegie Mellon University's Delphi Group, which pioneered the use of AI and machine learning to build real-time models of the pandemic, made essentially the same point. As the team's leading scientist, Roni Rosenfeld, has stated, while advances in data science facilitate more accurate tracking of disease outbreaks, we lack the capacity to model human behavior and the impact that lack of trust in government can have on successfully combating a deadly pandemic.

These observations highlight the importance of acting on the recommendations of both the Biden administration and bipartisan

leadership in Congress to more effectively integrate the social sciences into efforts to respond effectively to not only pandemics, but also the wide range of serious challenges we face as a society, such as climate change and the transition to clean energy it requires, cybersecurity, inflation and crime.

In my view, solutions to these problems require both the humanities and social sciences, but in response to Jha's remarks, I will focus on the latter.

The social sciences are essential to designing strategies that involve science and technology that will be effective in the real world, in part because they are crucial in communicating information about science or technology to the general public. Vaccine hesitancy is a perfect example. Social scientists have learned that different social groups (determined by race, ethnicity, age and religion, not just political party) all had different initial responses to the vaccine, and these groups' uptake behavior all evolved differently as a result of national- or community-level communication efforts. One size does not fit all, and understanding human behavior and decision making are key to customizing strategies and building trust.

Another example is the integration of advances in artificial intelligence into society at large. AI is fueling incredible advances in efficiency and automation, but these advances have the potential to either improve people's lives or put vast numbers of people out of work or both. We can't stop the technology from being developed, and most of us don't want to, but how AI plays in our society will be determined by how

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we manage it — which we cannot do without understanding the social world the technology will be embedded within.

What Jha's observation and the examples noted above speak to is the urgent need for a national strategy to reinvest in and reinvigorate the social sciences.

This strategy should have three key pillars:

- First, there must be a focused commitment to foster deeper engagement in the social sciences in K-12 education, particularly in underserved communities, with the same urgency with which we are appropriately working to broaden the STEM pipeline.

- Second, there must be an accelerated investment in the frontier of social science research with a particular focus on advancing interdisciplinary research that fully integrates disciplines like psychology, economics, political science, sociology, education and business with each other but also with technologically oriented disciplines like computer science, engineering, robotics, bioengineering, chemistry and medicine.

- Third, we must spend particular attention to the data science relevant to the social sciences. As we have in medicine, we must fund the creation and curation of large data repositories that protect privacy but give social scientists the raw information they need to understand the social world. The analytical tools available for analyzing social networks, social structure and social trends are light years ahead of where they were 30 years ago — the problem is good data in the commons to analyze.

Technology is advancing rapidly because industry has a large desire to put technology to use in advancing its goals and government agencies, particularly those focused on national security, are investing heavily in basic technology research. These are both good things, but we need commensurate investment in our ability to understand the society those technologies will become a part of and influence. Many efforts are already underway. The National Science Foundation has integrated social and behavioral science programs and funding with initiatives to accelerate U.S. leadership in the development of critical technologies. We need much, much more.

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