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# SCIENCE IN AN AGE OF POLARIZATION, PANDEMICS, AND FRAGMENTED INFORMATION ECOSYSTEMS



- COVID-19 as the perfect science (policy) storm?
- Three lessons from the pandemic ... that we might still not have fully internalized
- What does that mean for productive pathways forward for science *and* society?

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# COVID-19 AS THE PERFECT STORM?



- Need to inform policy in real time with
  - science that was moving dangerously fast, and
  - under immense public scrutiny
- Political realities of deeply disruptive interventions
- Blurring lines between expertise and advocacy

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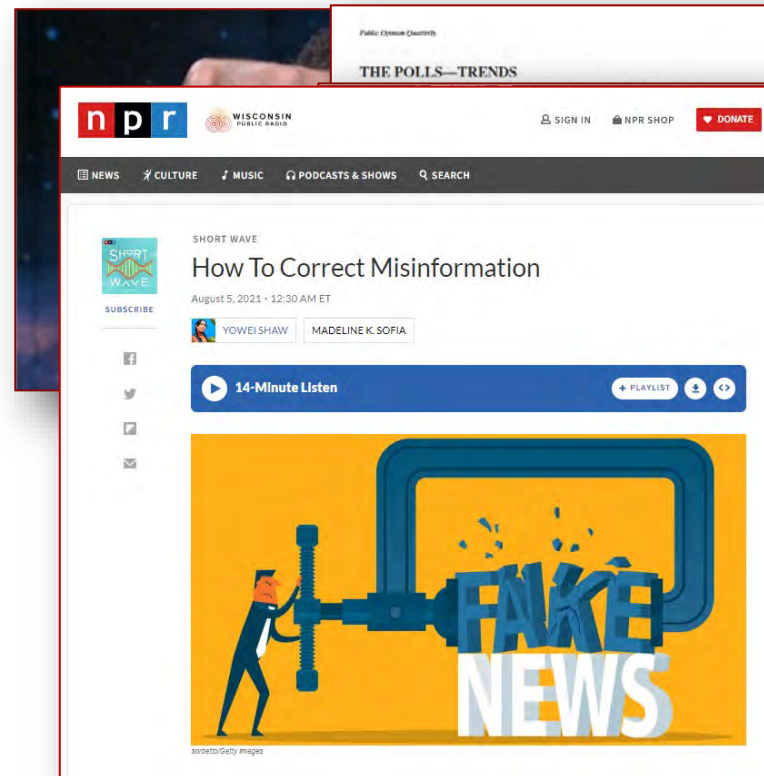
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- COVID-19 as the perfect science (policy) storm?
- Three lessons from the pandemic ... that we might still not have fully internalized
  - Science's temptation to cure public "pathologies"
- What does that mean for productive pathways forward for science *and* society?

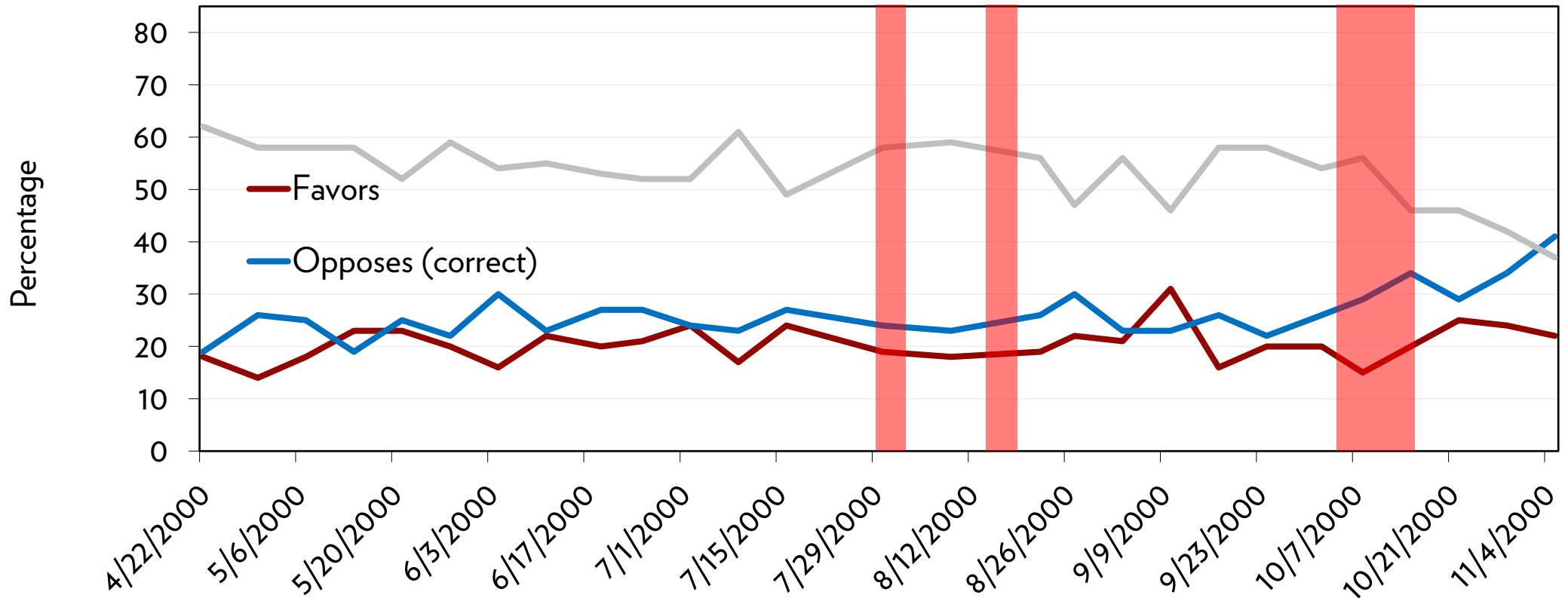
# DEBUNKED “DEFICIT THINKING” IN SCIENCE



- knowledge deficits
- trust deficits
- narrative deficits
- misinformation deficits
  
- Two (of many more) reasons why things are not as clear cut ...

# FIRST, WIDESPREAD PUBLIC IGNORANCE ABOUT POLITICS OR SCIENCE IS *NOT* A NEW PROBLEM

Do you happen to know whether Bush favors or opposes requiring people to register all guns they own?



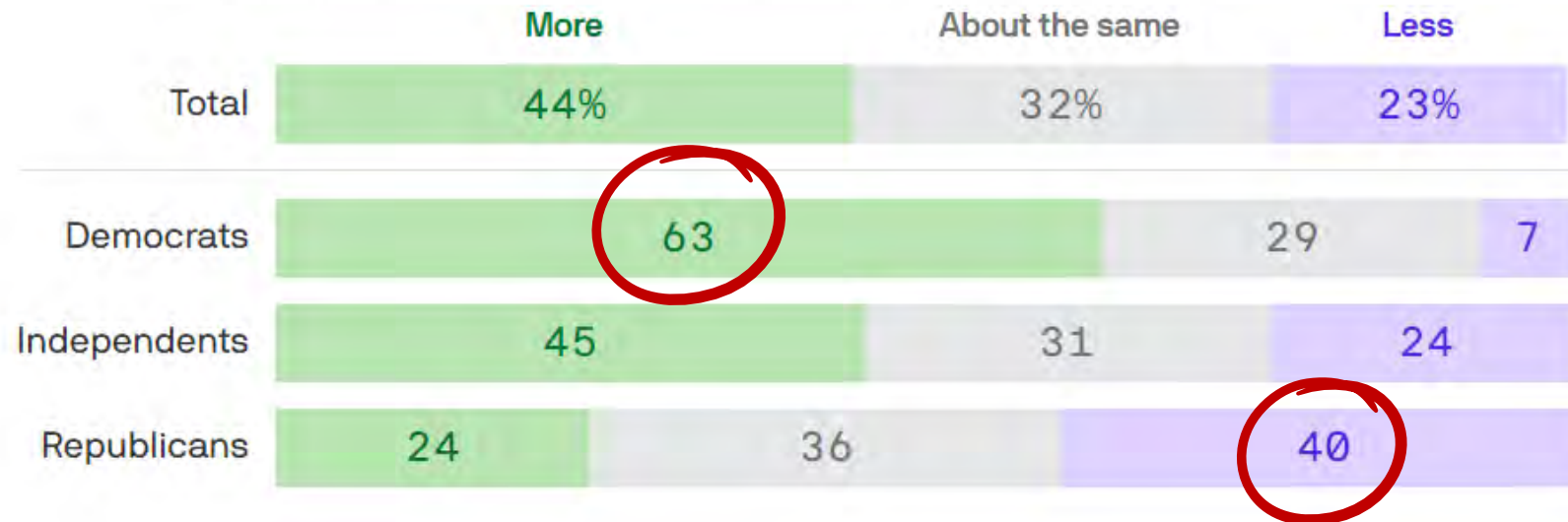
(Source: Vanishingvoter.org)



# SECOND, WE FALSELY BLAME AN ASSUMED *INABILITY* TO SPOT MISINFORMATION

Do you believe the number of Americans dying from COVID-19 is more, less, or about the same as the reported number?

Survey of 1,012 U.S. adults conducted May 1-4, 2020. Reported number in question was 61k deaths as of April 30, 2020.

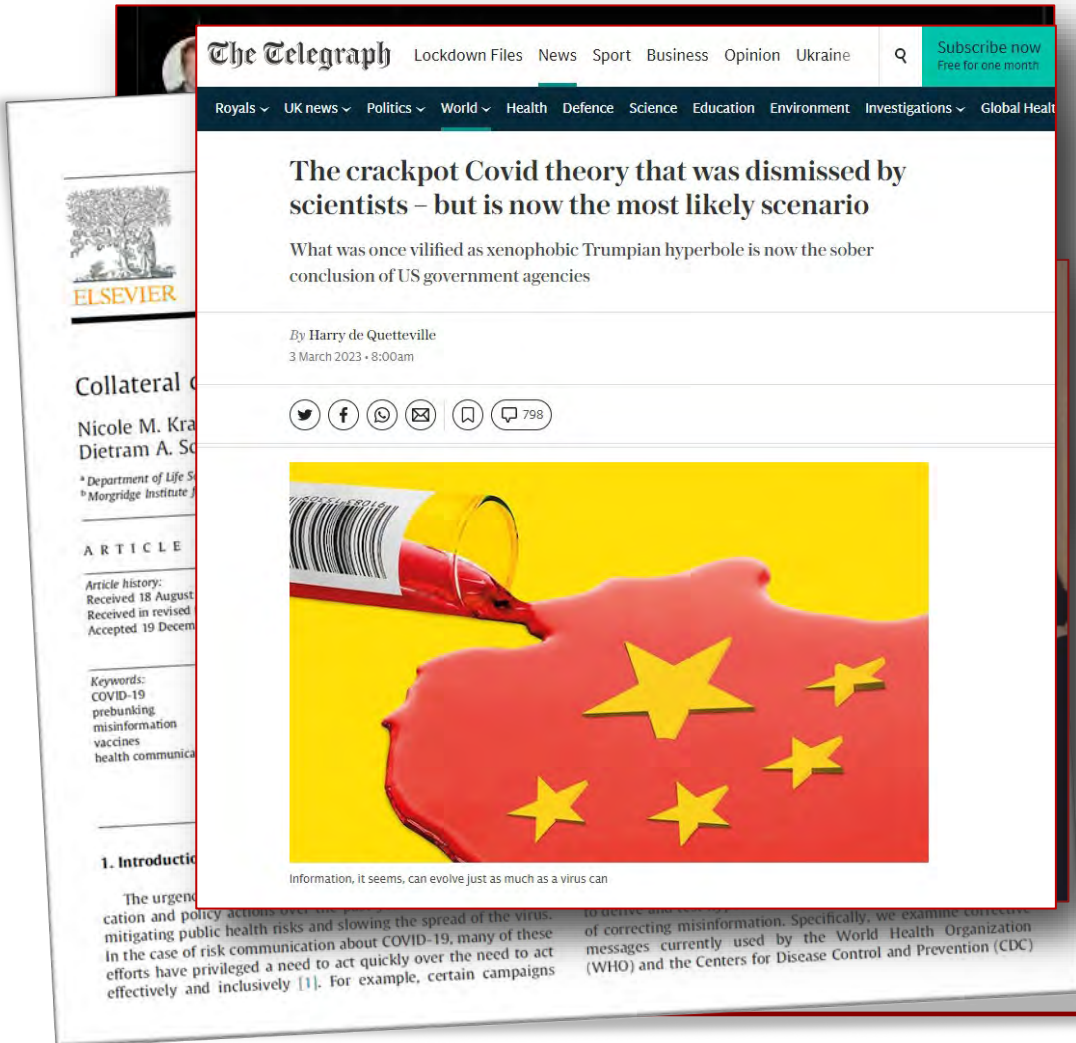




- Motivated reasoning
  - (Dis)confirmation biases
  - Biased assimilation
  - Identity protection
- The same piece of (scientific) information means different things to all of us ...

# THIRD, CORRECTING MISINFORMATION IS TRICKY

- Limited evidence that misinformation directly impacts relevant behavioral outcomes, i.e., physical distancing, vaccine hesitancy, etc.
- Corrective interventions can
  - give misinfo more digital oxygen
  - do collateral damage
  - raise ethical concerns for science *and* policy
- Most importantly, we're "treating" symptoms and are ignoring much larger systemic pathologies ...



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- COVID-19 as the perfect science (policy) storm?
- Three lessons from the pandemic ... that we might still not have fully internalized
  - **Tectonic shifts in our information ecologies**
- What does that mean for productive pathways forward for science *and* society?

# ALGORITHMIC INFORMATION ENVIRONMENTS ARE *DESIGNED* TO EXPLOIT OUR VULNERABILITIES




THE WALL STREET JOURNAL.

## Amazon Wants to Ship Your Package Before You Buy It

By Greg Bensinger  
Jan. 17, 2014 3:12 pm ET

SAVE SHARE TEXT



[Amazon.com](#) knows you so well it wants to ship your next package before you order it.

The Seattle retailer in December gained a [patent](#) for what it calls "anticipatory shipping," a method to start delivering packages even before customers click "buy."

BLOOMBERG

The technique could cut delivery time and discourage consumers from visiting physical stores. In the patent document, Amazon says delays between ordering and receiving purchases "may dissuade customers from buying items from online merchants."

- Social media platforms maximize user engagement, not truth ...
  - Exploit limits of human cognition
  - Predictively model behavior
  - Narrowcast news toward human preferences and echo chambers ...

# ALGORITHMIC INFORMATION ENVIRONMENTS ARE *DESIGNED TO EXPLOIT OUR BIASES*



- Social media platforms maximize user engagement, not truth ...
  - Exploit limits of human cognition
  - Predictively model behavior
  - Narrowcast news toward human preferences and echo chambers
  - Automate content creation tailored toward individual users

# THE BRAVE NEW WORLD OF ALGORITHMIC INFORMATION ECOLOGIES



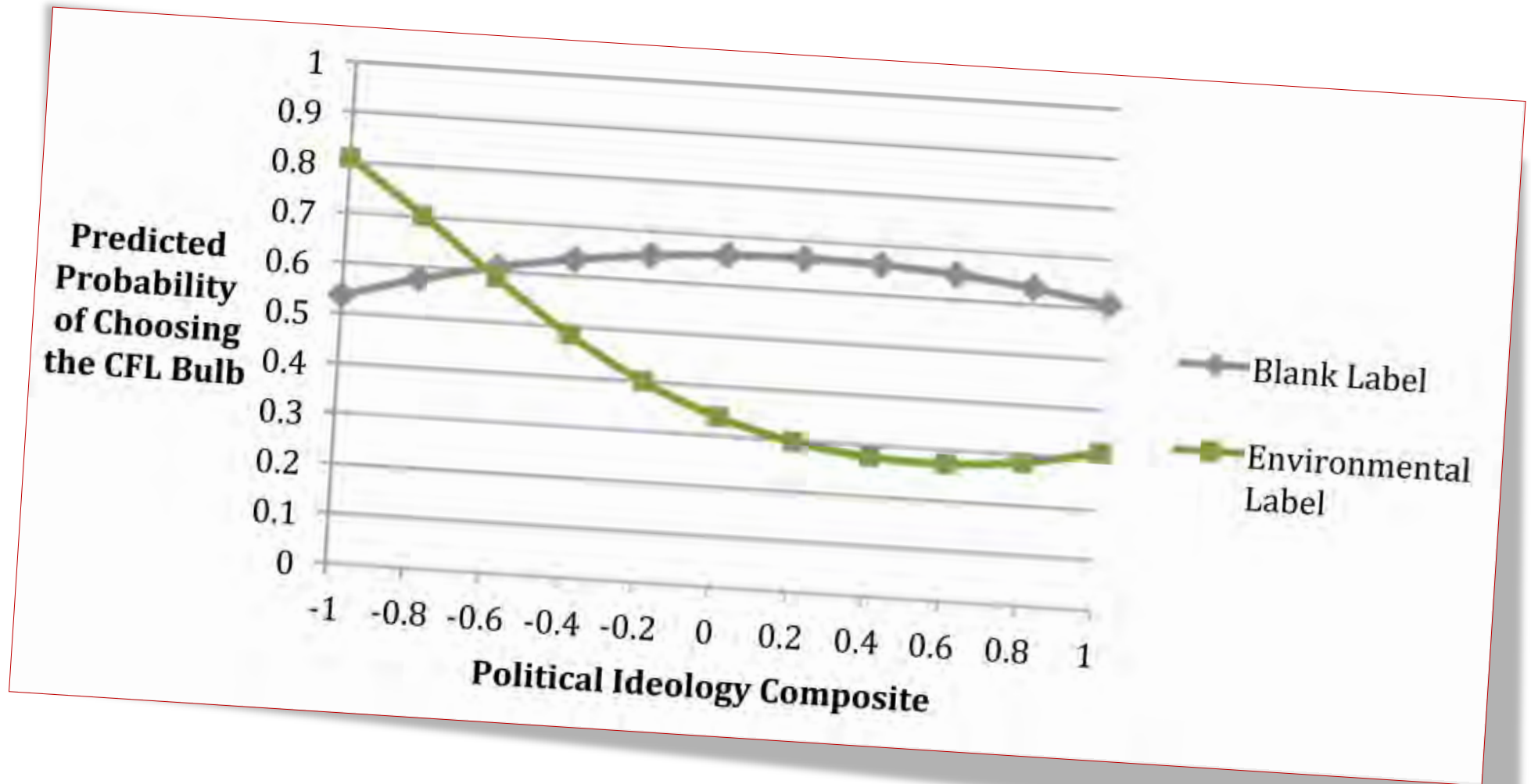
- “Facebook data constitutes the largest field study in the history of the world.” (Adam Kramer, Facebook data scientist)
- Proprietary (i.e., largely inaccessible) data and algorithms limit our understanding of how we can
  - communicate settled science on platforms optimized for disagreement
  - meaningfully inform policy debates across different partisan groups
  - find social consensus across reasonable value-based differences

# SCIENCE'S TROUBLE WITH TRUTH IN AN AGE OF POLARIZATION, PANDEMICS, AND FRAGMENTED INFORMATION ECOSYSTEMS



- COVID-19 as the perfect science (policy) storm?
- Three lessons from the pandemic ... that we might still not have fully internalized
  - Can social science help us avoid communication “landmines?”
- What does that mean for productive pathways forward for science *and* society?





# WHAT SOCIAL SCIENCE TOLD US 40+ YEARS AGO ...

## Problem 1 [ $N = 152$ ]: Imagine that the U.S.

is preparing for the outbreak of an unusual

If Program A is adopted, 200 people will be saved. [72 percent]

If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved. [28 percent]

Which of the two programs would you favor?

## Problem 2 [ $N = 155$ ]:

If Program C is adopted 400 people will die. [22 percent]

If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die. [78 percent]

Which of the two programs would you favor?

sequences of the programs are as follows.

Affective Science (2022) 3:577–602  
<https://doi.org/10.1007/s42761-022-00>

RESEARCH ARTICLE

## In COVID-19 Heal with Little-to-No from 84 Countries

Charles A. Dorison · Jer  
*author details at the en*

Received: 8 September 2021  
© The Society for Affective

### Abstract

The COVID-19 pandemic has impacted the global public. Given that research highlights a pressing question: is it possible to practice these steps, you can endanger yourself and others? Collecting data in 48 languages from 84 countries, three



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# FIRST, “JUST FOLLOW THE SCIENCE” AS A PRODUCTIVE MANTRA?

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**CBS NEWS**

## AstraZeneca COVID-19 vaccine not linked to blood clot risk, EU drug agency says

UPDATED ON MARCH 18, 2021 / 7:20 PM / AFP



### U.S. races to distribute COVID vaccine

02:32

Europe's medical regulator said Thursday the AstraZeneca vaccine is "safe and effective" and not associated with a higher blood clot risk, after more than a dozen countries paused rollouts over health fears. The closely-watched announcement comes after the WHO and

Thursday, April 15, 2021

Editions ▾ POLITICO Live ▾

**POLITICO** REGISTER SIGN IN

## Merkel to get Oxford/AstraZeneca vaccine: Reports

Chancellor expected to receive jab day after European Commission President Ursula von der Leyen.




**The New York Times**

The Coronavirus Outbreak > LIVE Latest Updates Maps and Cases Pause on Johnson & Johnson Vaccines >

As Infections Surge in Puerto Rico, People Are Urged Not to Drop Their Guard >

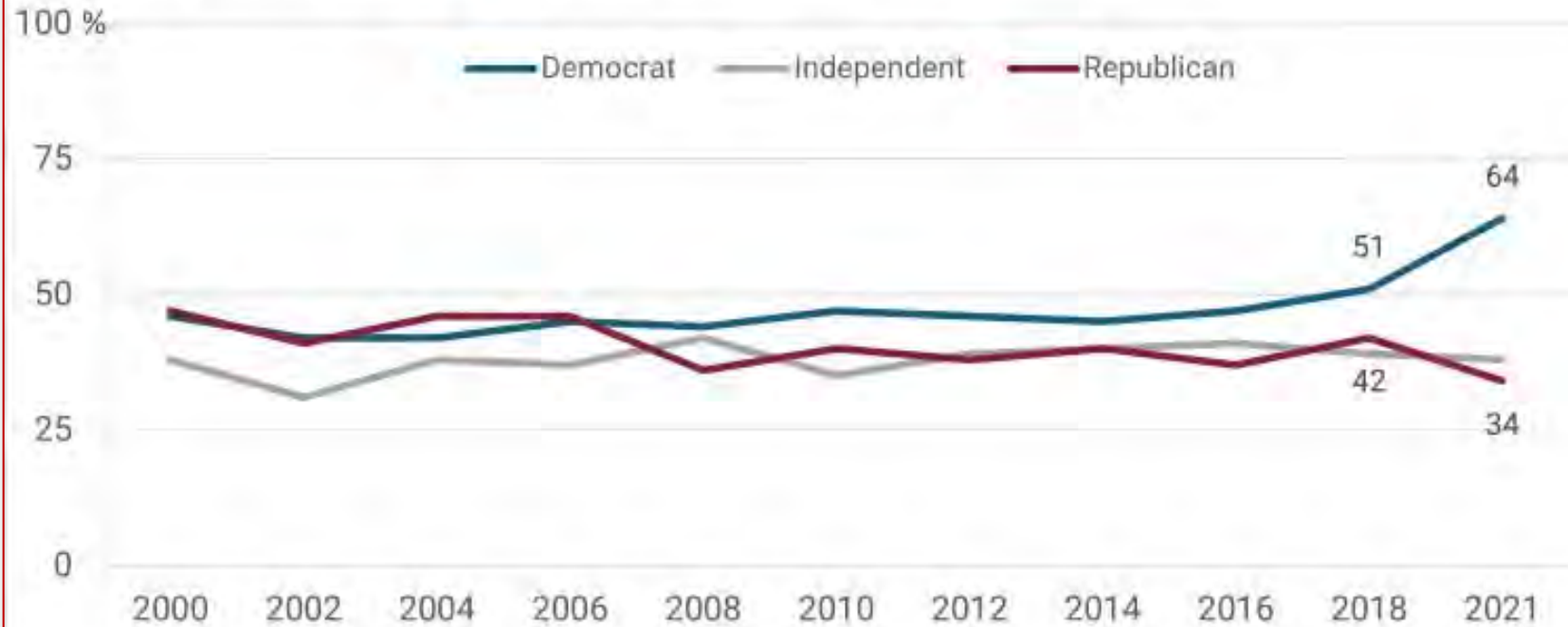
## Denmark says it's permanently stopping use of the AstraZeneca vaccine.



# SECOND, HOW DO WE MEANINGFULLY CONNECT WITH ALL AMERICANS ...

## Large partisan gap on confidence in the scientific community.

Percent of adults who have a great deal of confidence

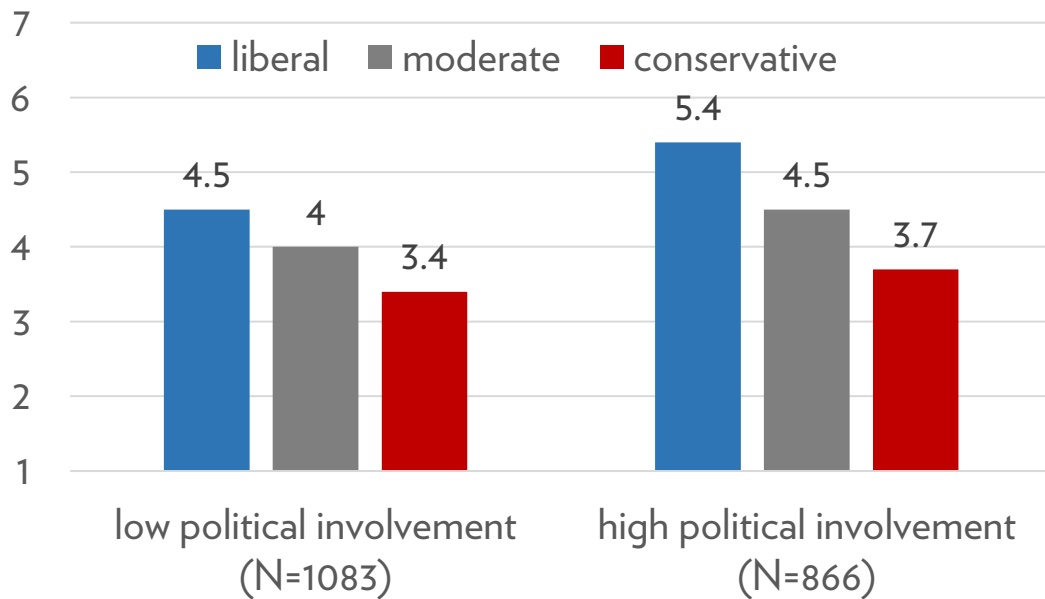


**Question:** [Scientific community] I am going to name some institutions in this country. As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?

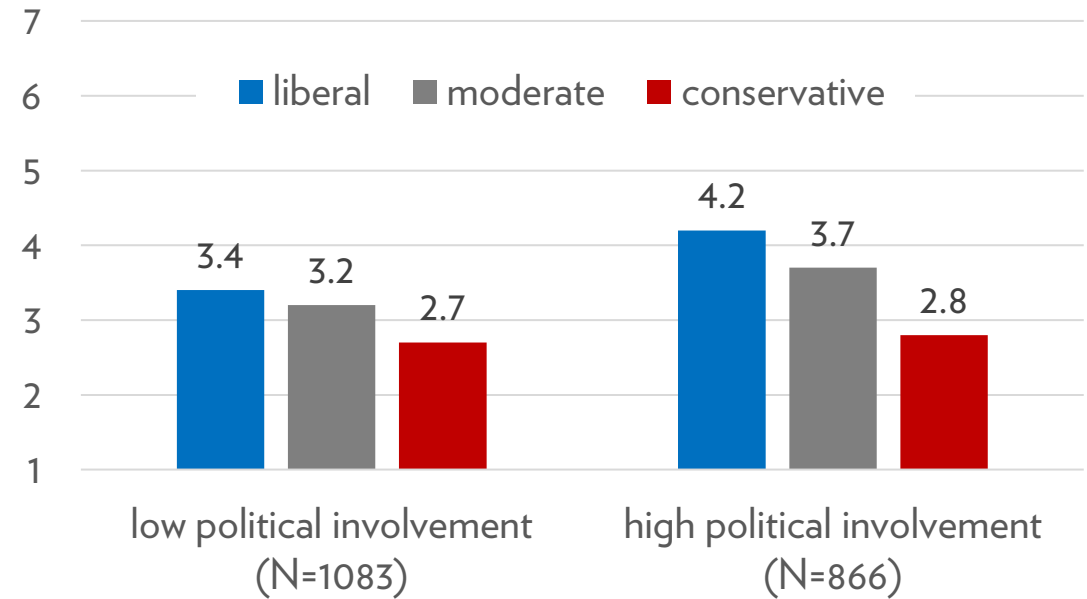
**Source:** General Social Survey, the latest conducted December 1, 2020-May 3, 2021

# ... AND SEPARATE SCIENCE FROM POLARIZED POLITICS?

Average agreement that  
*“Protecting free speech is an important goal, but it is sometimes necessary to...restrict statements that contradict scientific facts”*



Average agreement that  
*“It is immoral to express opinions that might lower people’s trust in the scientific community”*



# FINALLY, SCIENCE INFORMS BUT DOES NOT *DETERMINE* POLICY

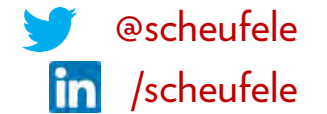


So how can we optimize policy choices with the best available scientific evidence?

- Language that speaks to shared values rather than (what might unfairly be considered) tribal identities
- Making value propositions that address salient public concerns, scientific or not
- Presenting evidence as “best available evidence right now” ... acknowledging that it will (and should) change



# THANK YOU



**Funding:**

John Templeton Foundation  
Morgridge Institute for Research  
National Science Foundation  
Rita Allen Foundation

U.S. Department of Agriculture  
U.S. Department of Energy

Office of the Vice Chancellor for Research and  
Graduate Education, University of Wisconsin–Madison