nature human behaviour

Supplementary information

https://doi.org/10.1038/s41562-025-02147-z

Political ideology and trust in scientists in the USA

In the format provided by the authors and unedited

Supplementary information

Pilot Study 1

The relationship between political ideology and trust in scientists was investigated using data previously collected for another project (https://osf.io/d5zcj). This study[75] recruited participants (N = 2780) through Prolific, with only US participants who had a minimum approval rate of 95/100 selected (1333 men, 1382 women, 65 indicated "other"; M_{age} = 39.03, SD_{age} = 14.93). Data collection took place in May 2022. Participants indicated their political ideology ("Please indicate your political orientation") using a seven-point scale (1 = *Liberal* to 7 = *Conservative*). They were next presented with six scientific occupations, which were randomly presented out of 45 used in the study. Participants rated how much they trust these scientists ("How much do you trust [occupation]?" using a seven-point scale, 1 = *do not trust at all* to 7 = *trust completely*)[1].

To determine the relationship between political ideology and trust in scientists, we ran a multilevel model (trust ratings were nested in participants and occupations). The model included a random intercept for both participants and occupations, and political ideology as a fixed effect. It also included a random slope for the effect of political ideology across occupations, so the relationship between ideology and trust for different occupations could be estimated. The analyses were pre-registered at https://osf.io/47zrd.

Multilevel modeling (ICC = .55) showed that trust varied both across participants (τ_{00} = .44) and occupations (τ_{00} = .07), and a fixed effect of political ideology indicated that liberals trusted scientists more (β = -.173 [-.123, -.223], t = -6.802, p < .001). Importantly, the effect of political ideology varied across different occupations, as indicated by random slopes variance (τ_{11} = .02). Including the random slopes in the model resulted in a better fit than the model without random slopes (LRT(2) = 288.4, p < .001). Indeed, as Supplementary Figure 1 shows, liberals placed more trust in some of the occupations (e.g., environmental scientists, immunologists), while for other occupations there were no differences in trust between liberals and conservatives (e.g., pharmacologists). Importantly, occupations dealing with climate change seem to be the most polarized, followed by occupations dealing with medical science/vaccination and social issues. Higher trust among liberals in other occupations seemed to be less variable, except for conservatives' preference for computer scientists and economists, whose nature of work indeed might be more aligned with conservative worldviews (e.g., a focus on economic productivity). In sum, liberals seem to trust scientists more, whereas this ideological polarization in trust is especially pronounced for groups of scientists that work on hot-button topics such as climate change, medical research (COVID-19) and social issues like inequality.

Supplementary Figure 1. The relationship between political ideology and trust in scientists across different occupations. Coefficients represent standardized *β* coefficients, accompanied with 95% confident intervals of the effect size, and *p* values (to the right). Effects were estimated from a multilevel model, based on N = 2780. Numbers in the brackets next to scientific occupations represent a number of participants who rated a given occupation. In general, liberals trusted scientists more, but the effect depended on scientific occupation in question, largely due to several occupations for which liberals indicated much higher trust, and two of them for which conservatives indicated higher trust. Effects colored blue are occupations where liberals indicated higher trust, while red represents occupations for which conservatives indicated higher trust

Pilot Study 2

Based on the five strategies identified to increase trust among conservatives, we developed interventions drawing from factual information (none of the text interventions involved deception). The goal of Pilot Study 2 was to test the validity of these theory-based interventions, by investigating whether they are perceived as believable, accurate, true, comprehensible, and fitting a conservative outlook. For four of the strategies, two intervention versions were designed and tested. For the source credibility strategy, we tested the respective impact of referring to one of 10 different public conservatives on trust in science (five politicians and five intellectuals).

We recruited 201 participants from Prolific US (119 females, 82 males; M_{age} = 40.99, SD_{age} = 13.53), preselecting only ideological moderates and conservatives (because in the main study, only conservatives were exposed to interventions) using the Prolific filter. Data collection took place in February 2023. Each participant was presented with one version of all five texts and asked to rate the information they read on how unbelievable or believable, inaccurate or accurate, false or true, and incomprehensible or comprehensible they thought it was, using 5-point bipolar scales. Participants were also asked to indicate to what extent they believed the information they read would appeal to a person with a politically conservative outlook (5-point bipolar scale, *it does not fit at all* to *it fits completely*). Factor analysis showed that, for each intervention, these items loaded on a single factor. Therefore, one rating of the perceived validity of the information was calculated for each intervention. We set out to develop interventions that would produce perceived validity scores above the scale mean of three ($M > 3$).

The five strategies, the respective interventions (two versions) based on the strategies, and their perceived validity levels are given in Supplementary Table 1. Appeal ratings are followed by a one-sample *t*-test which compared whether mean ratings are higher than 3. As evident from the table, all interventions had relatively high appeal ratings (higher than 3), except the first version of the descriptive norms (confidence in scientists) strategy. In deciding on which version to select when both of them had an appeal higher than 3, we opted for the one that had a higher effect size. There were three exceptions to this. The first exception is the selection of the value-based frame without the photo of the flag and eagle because, as reviewers noted, it is unclear whether a potential effect would be caused by the text or the photo. Secondly, in the source credibility strategy, we selected Henry Kissinger (instead of Ronald Reagan), because we wanted to include more diverse political occupations (rather than two presidents). Finally, given the reviewers' concerns that the term "ideological polarization" in the descriptive norm condition is loaded, we decided to replace it with a more neutral alternative (see original and edited versions in Supplementary Table 1). Versions selected for the main study are in bold.

Supplementary Table 1. Overview of five strategies, intervention versions and their appeal. Versions of interventions selected for the main study are in bold. Tests were one-sample t-tests comparing if mean ratings are higher than 3 (one-sided *p* values). No corrections for multiple comparisons were used.

Strategy	Intervention Version 1	Appeal ratings	Intervention Version 2	Appeal ratings
Value-based frame	**Many scientists work to preserve the world we live in and protect it against various natural and societal threats. They actively engage to conserve the order of the communities we love, giving us a sense of security and stability.**	*M* = 3.724; *SD* = .855; *t*(101) = 8.551, *p* < 001, *d* = .847 [.619, 1.071]	Many scientists work to preserve the world we live in and protect it against various natural and societal threats. They actively engage to conserve the order of the communities we love, giving us a sense of security and stability. *(In the form of pamphlet with an American flag and eagle)*	*M* = 3.685; *SD* = .702; *t*(98) = 9.704, *p* < 001, *d* = .975 [.734, 1.213]
Co-benefits frame	Many scientists work to develop new jobs and promote technological innovation, actively contributing to the economy. Scientists are believed to directly contribute to a substantial share of the Gross Domestic Product each year.	*M* = 3.620; *SD* = .842; *t*(109) = 7.719, *p* < 001, *d* = .736 [.524, .945]	**Many scientists work to develop new jobs and promote technological innovation, actively contributing to the economy. In certain countries, it is estimated that scientists directly contribute as much as 11% to the Gross Domestic Product each year.**	*M* = 3.582; *SD* = .685; *t*(90) = 8.113, *p* < 001, *d* = .850 [.609, 1.089]
Descriptive norms (confidence in scientists)	Recent research shows that scientists are among the most trusted professions in the US. Various surveys with representative samples in the US found that a majority of conservative respondents reported high levels of confidence in scientists.	*M* = 3.138; *SD* = .885; *t*(101) = 1.616, *p* = .055, *d* = .156 [-.035, .347]	**Recent research shows that scientists are among the most trusted professions in the US. Various surveys with representative samples in the US found that a majority of conservative respondents (over 70%) reported high levels of confidence in scientists.**	*M* = 3.191; *SD* = .935; *t*(101) = 1.985, *p* = .025, *d* = .205 [.000, .408]
Source credibility	Over the course of the last 75 years, various respected conservatives have publicly signaled their trust in scientists. For example, conservative politicians such as [*randomly inserting one politician*] relied heavily on scientists' input on various issues, whereas many scientists and intellectuals such as [*randomly inserting one intellectual*] were conservatives themselves.	*Politicians (selected ones are in bold)*: **Henry Kissinger** (*M* = 3.640; *SD* = .726; *t*(39) = 5.573, *p* < .001, *d* = .881 [.511, 1.243]) Ronald Reagan (*M* = 3.750; *SD* = .764; *t*(39) = 6.206, *p* < .001, *d* = .981 [.599, 1.355]) **George W. Bush** (*M* = 3.705; *SD* = .725; *t*(39) = 6.153, *p* < .001, *d* = .973 [.591, 1.346]) John McCain (*M* = 3.515; *SD* = .801; *t*(39) = 4.066, *p* < .001, *d* = .643 [.298, .980]) Arnold Schwarzenegger (*M* = 3.698; *SD* = .856; *t*(40) = 5.220, *p* < .001, *d* = .815 [.457, 1.165]) *Intellectuals/scientists (selected ones are in bold)*: **William F. Buckley** (*M* = 3.718; *SD* = .774; *t*(43) = 6.152, *p* < .001, *d* = .927 [.569, 1.278]) Thomas Sowell (*M* = 3.635; *SD* = .810; *t*(39) = 4.958, *p* < .001, *d* = .784 [.425, 1.135]) **Ayn Rand** (*M* = 3.746; *SD* = .628; *t*(36) = 7.222, *p* < .001, *d* = 1.187 [.760, 1.605])		

		Milton Friedman (M = 3.668; SD = .833; t(40) = 5.140, p < .001, d = .803 [.446, 1.152]) Kerry Emanuel (M = 3.538; SD = .813; t(38) = 4.135, p < .001, d = .662 [.311, 1.006])		
Descriptive norms (conservatives as scientists)	**[original version]** Although there seems to be ideological polarization about the role of science in society, many scientists in fact consider themselves conservatives. Currently, there are approximately 400 000 conservative scientists working in the US alone. **[edited version] Although there are ideological differences among scientists, many scientists in fact consider themselves conservatives. Currently, there are approximitely 400 000 conservative scientists working in the US alone.**	M = 3.374; SD = .782; t(108) = 4.999, p < 001, d = .479 [.280, .676]	Although there seems to be ideological polarization about the role of science in society, many scientists consider themselves conservatives. In fact, many of almost 10 million conservatives who have post-graduate degree work as scientists.	M = 3.337; SD = .898; t(91) = 3.600, p < 001, d = .375 [.163, .586]