

Polarization for controversial scientific issues increases with more education

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Carnegie Mellon University researchers examined predictors of Americans' beliefs about six potentially controversial issues -- stem cell research, the big bang, human evolution, genetically modified foods, nanotechnology and climate change. And they measured education by the highest degree earned, science classes taken in high school and college and aptitude on general science facts. They found that beliefs were correlated with both political and religious

identity for stem cell research, the big bang and evolution and with political identity alone on climate change. On each of these issues, individuals with more education, science education and science literacy had more polarized beliefs. Credit: Baruch Fischhoff

A commonly proposed solution to help diffuse the political and religious polarization surrounding controversial scientific issues like evolution or climate change is education.

However, Carnegie Mellon University researchers found that the opposite is true: people's beliefs about scientific topics that are associated with their political or religious identities actually become increasingly polarized with education, as measured by years in school, science classes, and science literacy.

"A lot of science is generally accepted and trusted, but certain topics have become deeply polarizing. We wanted to find out what factors are related to this polarization, and it turns out the 'deficit model'—which says the divisions are due to a lack of education or understanding—does not tell the whole story," said Caitlin Drummond, the lead author who recently received her Ph.D. in behavioral decision research from CMU's Department of Social and Decision Sciences and will be a postdoctoral research fellow at the Erb Institute at the University of Michigan this fall.

Published in the *Proceedings of the National Academies of Sciences* (PNAS), Drummond and CMU's Baruch Fischhoff used data from the nationally representative General Social Survey. They examined predictors of Americans' beliefs about six potentially controversial issues—stem cell research, the [big bang](#), human evolution, [genetically modified foods](#), nanotechnology and [climate change](#). And they measured

education by the highest degree earned, [science classes](#) taken in high school and college and aptitude on general science facts.

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The researchers found little evidence of political or religious polarization for nanotechnology and genetically modified food.

"These are troubling correlations. We can only speculate about the underlying causes," said Fischhoff, the Howard Heinz University Professor in IPS and the Department of Engineering and Public Policy. "One possibility is that people with more education are more likely to know what they are supposed to say, on these polarized issues, in order to express their identity. Another possibility is that they have more confidence in their ability to argue their case."

The results also showed that for all six issues, people who trust science more are also more likely to accept scientific findings.

"We would love to be able to understand what is causing the relationship we observe between education and polarization, and how certain science topics got so polarized in the first place," Drummond said.

"Disagreements about science seem to be about more than the science itself, but also what the science's implications are for a person's identity."

More information: Caitlin Drummond et al., "Individuals with greater science literacy and education have more polarized beliefs on controversial science topics," *PNAS* (2017).

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