



# Creationism and climate skepticism: power and public understandings of science in America

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## Abstract

This FORUM article is written in response to ‘Evolutionary Stasis: creationism, evolution and climate change in the Accelerated Christian Education curriculum’ by Jenna Scaramanga and Michael J. Reiss published in CSSE in 2023. Starting from a sociological rather than pedagogical standpoint, the article aims to situate Accelerated Christian Education’s curriculum in relation to evolution and climate change in its broader context. This broader context comprises a national situation of Culture Wars where views on science and religion are politically polarized and morally inflected. Creationism and climate change denial/skepticism occur together and connect to right-wing politics. Climate change denial also clearly connects to corporate interests. Struggles for political, economic, ideological, and epistemic power all pertain. Reference is then made to recently collected focus group data to illustrate how non-creationist publics may also define science narrowly and inaccurately and yet still support it. The influence of evolution and climate change denialists must not be overstated. However, the harm of inaccurate, pseudoscientific education also requires examination. Nothing less than the Earth’s future is at stake, and education is a key battlefield. Science educators have an important role to play, working with patience, empathy, and awareness.

**Keywords** Evolution · Climate change · Denialism · Christianity · Politics

Jenna Scaramanga and Michael J. Reiss make an important contribution in their 2023 *Cultural Studies of Science Education* article ‘Evolutionary stasis: creationism, evolution and climate change in the Accelerated Christian Education curriculum’. They detail where and how Accelerated Christian Education’s (ACE) curriculum deals with evolutionary science and climate change, including edits across editions of their Packets of Accelerated Christian Education (PACES). As the authors argue, it is important for science educators

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This review essay addresses issues raised in Jenna Scaramanga and Michael Reiss’s paper entitled: Evolutionary stasis: creationism, evolution and climate change in the Accelerated Christian Education curriculum. <https://doi.org/10.1007/s11422-023-10187-y>.

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to know what some of their students may have been taught. The article adds to knowledge and, I would contend, provides data of social significance.

The article highlights issues of power, morality, and expertise within the context of America's Culture Wars. I approach this as a sociologist interested in science and religion rather than education specialist, and these are the themes I aim to explore in this commentary. The emphasis is less upon a psychological understanding of individuals' predilections for certain modes of belief (such as in conspiracy theory) and more upon broader, more structural patterns: community, identity, society. Views on science and religion are profoundly politically polarized in the contemporary United States. Evolution and climate change are two scientific topics particularly salient to this polarization (O'Brien and Noy, 2020). Sociologist John Evans (2018) argues that, in America, science-religion conflicts are more moral than epistemic and tend to arise around areas of science that overlap with a Christian anthropology. These national trends are observable in ACE's curriculum where evolutionary science and anthropogenic climate change are denied. What is at stake in this denial?

## Power

A sociological analysis facilitates study of the interactions between spheres: the educational; the legal; the political; the economic. All this can be seen to be at play with ACE's curriculum. The organization has faced lawsuits and accreditation challenges (Scaramanga and Reiss, 2023). Adam Laats (2024) draws attention to recent Supreme Court of the United States (SCOTUS) decisions raising the possibility that educational materials such as those produced by ACE could be publicly funded. Scaramanga and Reiss (2018) draw attention to some ACE schools' receipt of public funding via school voucher programs and former education secretary Betsy DeVos' advocacy for expansion of the school voucher program, which would serve private schools' interests. ACE's current annual revenue is estimated at somewhere around \$30 million (<https://www.zoominfo.com/c/accelerated-christian-education-inc/245908>; [https://growjo.com/company/Accelerated\\_Christian\\_Education](https://growjo.com/company/Accelerated_Christian_Education); <https://incfact.com/company/acceleratedchristianeducation-hendersonville-tn/>. Retrieved July 25, 2023.). Money is at stake. Power is at stake.

We may understand power sociologically as a relational capacity to achieve compliance and/or obedience closely associated with authority and legitimacy. In his classic study, Michael Mann (1986) delineates military, economic, political, and ideological power. He also identifies human needs for cognitive frameworks, normative frameworks, and meaning. ACE provides cognitive and normative resources, plus resources to mobilize and sustain identities: meaning. Contestation over economic, political, and ideological power can be seen in ACE's work and the wider social climate within which the company operates.

Conservative Christian teachings, not least forms of denialism, connect to political and economic conservatism in multiple ways. Free market biblical economics aligns very clearly with corporate interests (Degner, 2021; Laats, 2024). The instrumental benefits to the fossil fuel industry of anthropogenic climate change denial and skepticism and corporations' role in funding their promotion are well-established (Oreskes and Conway, 2020). Retired Chemistry professor Paul Braterman (2022) comments in an online piece that "while there is no commercial interest in denying evolution, denying the need for action on climate is a well-funded industry...". Braterman (2022) goes on to analyze Young Earth creationism advocates' stated reasons for rejecting the notion that there is any need to act

to reduce human-caused climate change. He also points out direct connections between Young Earth creationist organizations and prominent conservative think tanks that have promoted climate change skepticism. Riley E. Dunlap and Peter J. Jacques (2013) show a connection between climate change denial, conservative think tanks, and creationism. Sven Ove Hansson (2017) also finds links between evolution and climate change denialism, and right-wing politics. These observations can go some way to helping understand the co-occurrence of creationist and climate change denialist content in ACE's current curriculum. Economic and political power are at stake.

Laats (2024) provides further historical context for ACE's development out of Bob Jones University and the 1925 Scopes Trial itself. Christian fundamentalists created a way to educate young people protected from what was (and is) perceived as an immoral, leftist, humanist, secular culture. We can see this as part of the trend of orthodox backlashes against progressive movements within American Protestantism, Catholicism, and Judaism. James Davison Hunter (1991) documents in his analysis of the Culture Wars. Education became a key site for struggles focused on issues related to gender, sexuality, and science (Hunter, 1991). Education imparts values. Textbooks themselves impart values (Aechtner, 2019). The struggles are about ideological as well as economic and political power. The soul and future of the nation are at stake for these Christian protagonists who continue to regard themselves as an embattled minority (Whitehead and Perry, 2020).

A form of power not addressed by Mann (1986) is epistemic power (Dotson, 2018). ACE's curriculum is a moral and epistemic project. What is right and what is wrong epistemically is at stake as well as what is right and wrong morally. In this sense, ACE's authors and other evolution and climate change denialists might regard themselves as counterhegemonic. For, indeed, these views violate overwhelming scientific consensus. They are not shared by the majority of the American population. Science has such strong cultural authority that it must nonetheless be invoked to attempt to undermine aspects of it (Weingart, 2018).

## Science

Appropriating scientific language and tools to try to isolate and discredit evolutionary science as not part of real or true science is a well-established strategy within organized creationism (Guhin, 2020; Kaden, 2019; Long, 2011; Toumey, 1994). Scaramanga and Reiss (2023) document correction, contestation, and revision occurring within this shadow science of creationism. Even within pseudo-science some arguments become untenable and uncredible.

Scaramanga and Reiss (2023) critique ACE's depictions of science and the scientific process. In the PACEs, science is defined narrowly as hypothesis testing and experimentation. Between 2021 and 2023 I have been conducting online focus groups with members of the public in Northeast Ohio about science, identity, and values. Two educator participants did discuss experiencing challenges regarding science curricula. Peter is a White Catholic who identifies as Independent politically and a high school science teacher. Peter reported questions and complaints he and colleagues have received from students and parents: "Are you going to be teaching the Big Bang? Are you going to be teaching evolution? Are you going to be teaching these things? I have a religious exemption for that. I have a religious complaint about that." The way Peter described handling such comments was to say: "Well,

what is the point of religion? It's to find some truth in the universe. What's the point of science? It's to help us find our way to some truth."

Robert is a retired school administrator who is also a White Catholic and an Independent (Robert participated in a different focus group from Peter and there is no link between them. Pseudonyms are used to protect participants' anonymity.). He talked about feeling on the "frontlines" with homeschoolers while working. Following homeschooling up until age 14, parents would then enter their children for mainstream high school. These parents and students would question the school's science curriculum. Robert spoke about his disagreements not only with families regarding science curricula, but with science teachers within the school too. He saw biology and other science teachers being too equivocal in their handling of creationist perspectives, referring to them as a "strain of thought." For Robert it was important to label such perspectives as religious: "Emphasize it's a religious strain of thought about the beginning of the Earth, do not call it science. We all acknowledge that, but we're going to acknowledge what it is. It's a religious belief, it has no basis in fact." He had arguments with teachers and families about this, and some complained to the Board of Education. The Board of Education supported Robert's perspective stating (according to Robert): "...this is the right way to do it. Call it what it is. It's a religious belief just like the Flat Earth. You know, some people believe the Earth is flat, call it what it is for students—that it's a belief people hold. It has no basis in fact, but it's a belief."

While only one participant expressed explicitly creationist views themselves, participants consistently expressed similar understandings of science to those found in ACE's PACEs. For example, when I asked participants in one focus group what science meant to them, White nonreligious Democrat and retiree Mortie invoked what he described as a "grade school [ages 5–10] definition of science." For Mortie, science is a methodical process to learn about and understand the natural world that is evidence based and repeatable: "It has to be documented by multiple parties, and various conditions, so that it's not just a one-off kind of fluke incident." In a different focus group, another teacher (Tina, a White Catholic Democrat) also invoked the principle of repeatability: "That is my biggest thing with science. And it's something I try to impart to both my students and my own child. But if we continue to keep the factors the same, will we have the same result? Once we are assured of that, start to tweak one thing at a time. So, I very much believe in controlled experiments, not changing too much at once." Charlene, who identified as South Asian and Hindu and stated no political preference, also referred to experimentation and evidence to define science. Proof was important to her understanding of science: "So for science, I have to tell my kids is just a scientific collected data based on facts, not just hypothesis, or just your intuition or something like that, you have a proven research in the laboratory or somewhere else. So that's what science means to me." Charlene also referenced teamwork and medical science more specifically: "And I also believe in that polio or anything, we didn't eradicate it through magic, or anything, we eradicated it through science."

Science is vast, complex, unstable, and difficult to define. A lot of boundary work has been and continues to be done to distinguish science from non-science (Gieryn 1983; 1999). Focus group participants were unsure where to draw the boundaries between different academic disciplines, e.g., whether history was part of science or not. Some spoke critically and/or dismissively of their own K-12 science education experience, regarding it as having been narrow and dull: "And I think like in high school, it kind of bothered me that the science classes were really like limited to biology and chemistry, there's way more kids could have been studying than just the typical things you're used to, you know?" (Alice, White Protestant Democrat). Indeed, there have been calls to refine the nature of science education within American science education in general (Walls, 2012). Yet, all participants

were pro-science overall and far less critical of science than religion, while the majority identified as Christian (in keeping with the demographics of the region and the country).

Reference to data collected with this qualitative sample it is not intended to defend or justify inaccurate, pseudoscientific education, or propose symmetry (Barnes, Bloor and Henry, 1996). Rather it is to help further contextualize dynamics at play. I understand very little of evolutionary or climate science myself. As with science in the abstract, both fields are vast and complex. I must trust and accept what the experts say. Given my social location, knowledge, and experience, I find this easy to do. Above I noted that power is closely bound up with authority and legitimacy: who we trust to exert power. The educators using ACE's materials, the children receiving their instruction, and their families all place their trust in ACE. ACE functions as a legitimate educational authority with epistemic power for them. Yet, ACE's PACEs appear to comprise poor pedagogy disadvantaging children receiving this form of education: doing them a disservice. ACE engages in a normative project and ethics and morality are also engaged when analyzing the company's work.

Agnology is the study of deliberately induced ignorance related to social and political contestations and interests (Proctor and Schiebinger, 2008). As established, ignorance of the need to act on anthropogenic climate change serves particular interests and co-occurs with creationism in the United States. Providing children with low-quality education may harm their future. Ignoring the climate crisis specifically is harmful, potentially with consequences on a much broader scale. The future of species, including humans, is at stake (Hansson, 2017). Climate science education needs improving across the board (Perdrial, Kincaid, Wheaton, Seybold, Stewart, Walls, Blouin, Toolin, Chorover and Lewis, 2023).

Scaramanga and Reiss (2023) recommend empathy and patience to science educators engaging with people who have received ACE's education. This seems eminently sensible. Discussing ordinary people's rather than experts' views on science here may also support empathetic approaches. Dismissal and ridicule are ineffective when addressing mis- and disinformation (Aechtner, 2020; Catto, Riley, Elsdon-Baker, Jones, and Leicht 2023). ACE's students have been taught that science is important (albeit in a way highly divergent from mainstream education) and this could be a potential point for engagement. Approximately 35% of the US population ascribing to creationist beliefs in response to polling questions on the topic may appear a shockingly high proportion to readers who personally do not experience difficulties accepting evolutionary science, even without necessarily having extended knowledge and/or understanding of it (Scaramanga and Reiss, 2023). However, such survey responses do not necessarily mean that such beliefs are deeply held, coherent, and/or salient for respondents, nor does it mean these respondents are wholly anti-science (Hill, 2019; McCain and Kampourakis, 2018). Alongside practicing empathy and patience, avoiding making assumptions about the worldviews of the recipients of ACE's and other similar forms of education is important. Retaining a distinction between those who promote and profit from evolution and climate change denial, operating with greater power in context, and publics is valuable (Warner, 2002).

## Conclusion

In the contemporary United States accepting evolution is normal. Accepting anthropogenic climate change and the need to act to reduce it is normal. Support for science in general is normal. Evolution and climate change denialists do not dominate the public sphere, despite a century-long effort by the former to do so. It is important to avoid "creating creationists,"

not least when international data about rates of creationist views are even more nuanced to interpret than US data (Catto, Jones, Kaden, and Elsdon-Baker, 2019; Elsdon-Baker, 2015, p. 422; Elsdon-Baker, 2020). The US may be a distinctive case in terms of science, religion, and politics, rather than global blueprint. Yet, Gordon Gauchat (2023) regards science's legitimacy as fragile and under threat, both within and beyond the United States. Scaramanga and Reiss (2023) point out that ACE also operates in a number of other countries. The picture is mixed. Low-quality education harms students, and various forms of science denialism can serve nefarious agendas. K-12 and higher education curricula are currently under attack from American state legislatures (Long, 2024). Education endures as a key battlefield for political, economic, ideological, and epistemic power: for struggles to shape the future. This speaks to the timeliness and urgency of studying ACE's outputs and multidisciplinary research for analysis and understanding.

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## Declarations

**Conflict of interest** The authors declare no conflict of interests.

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