

Science engagement with faith communities: respecting identity, culture and worldview

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Abstract

Most adults in the U.S. and worldwide claim a religious affiliation. As an element of identity and worldview, faith informs many individuals' views of science, technology, and society at large. Engagement with faith communities and religious leaders about science can improve public perceptions and trust of scientists, advance evidence-based policy, and improve diversity, equity and inclusion in science fields. This commentary outlines examples and suggests guiding principles for science engagement with faith communities.

Keywords

Public engagement with science and technology; Public perception of science and technology; Social inclusion

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Impactful science communication is inclusive and equitable [Dawson, 2018; Canfield et al., 2020]. More than 75% of U.S. adults and 84% of adults worldwide claim a religious affiliation [Pew Research Center, 2015; Hackett, Stonawski and McClendon, 2017] including many scientists [Ecklund, Johnson et al., 2016]. Engagement with faith communities and religious leaders can support efforts to improve public perceptions and trust of scientists, to advance evidence-based policy, and to improve diversity, equity and inclusion in Science, Technology, Engineering and Mathematics (STEM) culture and practice. In this commentary we will make a case for intentional engagement with faith communities and highlight several initiatives that illustrate science communication best practices and may serve as models and case studies for other initiatives.

Why engage with faith communities?

Science (broadly speaking) has wide support among adults in the U.S. and worldwide [Khan et al., 2016; Gallup, 2019]. Religion and spirituality are common, and often central, pillars of individual and community identity, and influence people's views on a range of science and technology topics [Ecklund and Scheitle,

2017]. Interestingly, 59% of U.S. adults say that science and faith are “often in conflict”, though only 30% report “sometimes” experiencing this conflict in their own lives [Pew Research Center, 2015]. Together, these findings suggest that an expectation of conflict between science and faith might be more reflective of pervasive cultural messages than of personal lived experience [Ecklund and Scheitle, 2017; Chan, 2018; McPhetres, Jong and Zuckerman, 2020; Gallup, 2019]. In this context, proactive and thoughtful engagement with faith communities by science communicators can create opportunities to challenge preconceptions of “conflict”, encourage reflection among both practitioners and the public, help align individuals’ perceptions of science in society with their lived experiences, and promote opportunities for collaborative civic action among diverse stakeholders.

Respect for science does not necessarily translate into feelings of warmth and trustworthiness about scientists [Fiske and Dupree, 2014]. Scientists are sometimes perceived as cold, indifferent to the ethical questions or societal impacts of their work, and hostile (or at least indifferent) to faith [Scheitle and Ecklund, 2017; Ecklund and Scheitle, 2017; Rutjens and Heine, 2016; Beauchamp and Rios, 2020]. A survey of scientists and the U.S. public found wide differences of opinion on some topics, including the use of animals in medical testing, the safety of genetically modified foods, whether climate change is primarily due to human activity, and whether humans evolved over time [Pew Research Center, 2015]. Scientists and others may be tempted to attribute such differences as reflecting “deficits” of education or expertise that might be “corrected” through clear communication of scientific information. While clear communication of scientific information is important, this is often insufficient to sway opinions on socially or politically contested topics which can be linked to group identity [National Academies of Sciences, Engineering and Medicine, 2017; Nisbet and Scheufele, 2009]. Beliefs about science do not reflect knowledge about science alone but also reflect *values*, whether cultural, economic, political, or religious [Kahan, 2012; Kahan, 2014; Lewandowsky and Oberauer, 2016; Gallup, 2019]. As noted by climatologist Katharine Hayhoe, for meaningful engagement on many forefront science topics, “facts are not enough” [Hayhoe, 2018].

Impactful science engagement must move beyond one-way communication of scientific information and recognize the role that social context, including history, community, culture and religion, play in shaping an individual’s ideas and worldviews. Inclusive science discourse requires meaningful engagement with non-scientists’ perspectives [Leshner, 2003; Lubchenco, 2017]. Faith leaders are often trusted voices within their communities, and their support can give additional weight and credibility to scientific guidance [Cross, 2017; Foster et al., 2011; Schuldt et al., 2017; Sokolow, 2020; but also see Li et al., 2016]. Many faith communities are involved in public discourse and civic activism around forefront and interrelated science and society issues such as environmental justice [Stretesky et al., 2011] and public health [Campbell et al., 2007]. Religious leaders such as pastors, imams, and rabbis can disseminate and reinforce information through strong social networks. Faith communities also often have physical resources to support collective action such as meeting spaces, supplies, and phone banks [Lewis, MacGregor and Putnam, 2013; Glazier, 2020].

Representation and retention of people in STEM fields from minoritized and marginalized communities remains poor in the U.S., particularly for African

Americans, Latinx/Hispanic Americans, and Indigenous/Native Americans [Pew Research Center, 2018]. Among religiously affiliated U.S. adults, African Americans and Latinx/Hispanic Americans are the demographics most likely to answer that religion is either “somewhat important” or “very important” in their lives [Pew Research Center, 2015]. For minoritized communities, mistrust of scientists and skepticism about promises of community benefit from scientific endeavors are not necessarily anti-science positions. Such mistrust is grounded in historical and ongoing harms (e.g., Scharff et al. [2010]) including systemic racism and discrimination in science culture [Thorp, 2020; Odekunle, 2020]. Engagement with trusted community voices and institutions can identify ways for scientific expertise to be applied towards community problems and concerns [Foster et al., 2011], and help scientists and scientific institutions unsettle racist practices [Estrada et al., 2016; Dawson, 2018; Griffin, 2018; Jimenez et al., 2019]. Scientists who are not part of marginalized communities may first need to focus on relationship building and the establishment of frameworks for equitable decision making and resource sharing — all processes in which faith leaders can play an important role [Bradley et al., 2018; Foster et al., 2011; Society for Conservation Biology, 2018].

The Dialogue on Science, Ethics, and Religion program as a case study

The American Association for the Advancement of Science (AAAS) is the largest general science organization in the world [AAAS, 2020b]. AAAS publishes the *Science* family of journals and hosts a range of programs to support science education, science policy, career support for STEM professionals, and public engagement with science and technology, among other goals. A primary mission of AAAS is to “advance science, engineering and innovation throughout the world for the benefit of all people” [AAAS, 2020b].

The AAAS Dialogue on Science, Ethics, and Religion (DoSER),¹ established in 1995, fosters communication and engagement about science between scientific and religious communities, recognizing that these often overlap [AAAS, 2020a]. This mission reflects an understanding that culture, including religion and faith, plays a central role in how many people in the U.S. and worldwide frame interests, questions, and concerns about science and technology. As a program DoSER does not directly engage in theology or weigh in on theological questions. Instead, the program creates opportunities for engagement among scientists, policymakers, ethicists, theologians, religious leaders, and faith communities around forefront science and society topics. DoSER project activities are centered on sharing diverse perspectives, identifying areas of common interests and concern, and modeling inclusive discourse.

Our ongoing Engaging Scientists in the Science and Religion Dialogue (“Engaging Scientists”) project, begun in 2016, supports culturally and religiously inclusive science engagement, whether in classrooms or in public activities [AAAS, 2020c]. As of August 2020, 7 public events, 6 formal science symposia, and 26 workshops have been hosted at national and international science society meetings, university campuses, and informal science institutions. The workshop developed through the project, which focuses on the social context of science engagement, cultural humility and best practices for engagement with people of faith, is now available as a training module for scientists, science communicators and educators. To

¹<https://www.aaas.org/DoSER>.

incentivize collaborative engagement with faith communities, the project supported a contest with awards for attendees at university workshops in 2019, resulting in 18 winning public engagement projects developed by scientists in collaboration with faith community representatives [Korte, 2020]. Other project resources include a primer on dialogue-based science communication [AAAS, 2018] and a profile series on scientists engaging with diverse faith communities.² The profiles include both secular and religious scientists at different career stages, with concrete examples of engagement in a range of fields and contexts [Cohen, 2020]. For example, though she does not identify as a person of faith, ecologist Dr. Nalini Nadkarni is frequently invited to give guest sermons at churches, synagogues and other houses of worship to share and to learn about trees and plants in sacred texts [Nadkarni, 2007]; she and her students also participate in conservation efforts organized by faith communities. Astronomer Dr. Annette Lee (D/Lakota and Ojibwe) founded *Native Skywatchers* to revitalize Indigenous language and culture related to earth and sky knowledge, and to integrate these into art and STEM education.³ Dr. Katharine Hayhoe, a climate scientist and Evangelical Christian, frequently advocates for scientists and science communicators to focus on groups and communities they are already a part of, as these are likely to be where they will have the greatest impact. Accordingly, her extensive portfolio of engagement work includes focused discourse within Evangelical communities around environmental stewardship and care of creation [Webb and Hayhoe, 2017].

The DoSER program's engagement activities are not limited to scientists. The Perceptions project [AAAS, 2015] focused on bringing together religious leaders with scientists and science communicators to recognize and challenge stereotypes that scientific and faith communities have about each other. The project outputs included national surveys of scientists, religious communities, and the public at large about science and religion. The program also hosted workshops and convenings around the country and organized a national conference to summarize the project activities and to outline future directions for civic dialogue. The Continuing Education for Pastors project [AAAS, 2019] aimed to increase religious leaders' engagement with science so that they felt comfortable discussing scientific topics and issues with their congregants. In collaboration with DoSER, four seminaries developed and hosted classes for faith leaders and held public events on topics ranging from medicine, mental health, neuroscience, cosmology and astrobiology.

The Science for Seminaries project, begun in 2013, is a collaboration between AAAS and the Association of Theological Schools (ATS) to provide future clergy and religious leaders with scientific exposure during their required seminary education through coursework and regular engagement with scientists [AAAS, 2016; AAAS, 2020c]. By supporting the integration of science into core seminary coursework while leaving decisions about specific topics and program strategies to individual seminary professors, the program ensures that institutions can direct their focus to their communities' specific needs and interests. As of September 2020, over 190 courses across 34 seminaries have integrated new or updated science topics through the project, and 125 on-site or virtual science events have been hosted. At least 120 seminary faculty and 5000 students have been directly impacted by the

²<https://www.aaas.org/programs/dialogue-science-ethics-and-religion/profiles-science-engagement-faith-communities>.

³<https://www.nativeskywatchers.com>.

program. Finally, the project has produced a series of mini-documentaries (*Science: the Wide Angle*⁴) with study guides that faith communities and others can use as a basis for beginning conversations about the intersection of science and religion. Scientists (including secular scientists) who participate in the project as advisors or hosted speakers have gained experience with how science topics are explored and understood through religious lenses, and developed personally and professionally meaningful contacts and relationships with faith communities and institutions.

Other programs and initiatives

The Society for Conservation Biology has a working group on faith community engagement that in 2018 released a “best practices” guide for engagement with religious leaders [Society for Conservation Biology, 2018]. The Clergy Letter Project⁵ was established in 2004 by secular scientists and faith leaders to highlight acceptance of evolutionary theory among Christian denominations. It has since expanded to encompass statements and letters from a wide range of faiths. Each year on “Evolution Weekend” (scheduled around Darwin’s birthday), the program encourages and celebrates informal science events, sermons, and other activities in religious spaces about evolutionary theory, ecology, or other forefront science topics. Over 230 congregations participated in 2020 [Clergy Letter Project, 2020]. Interfaith Power and Light⁶ promotes environmental justice, sustainability and climate change activism within an explicitly religious (and religiously inclusive) framing. Programs like Biologos⁷ and Sinai and Synapses⁸ were created within religious communities to thoughtfully engage with forefront science concepts through specific theological or cultural lenses. Both organizations regularly host in-person and virtual events, publish newsletters and provide forums for community discussion. It is understandable that some scientists (secular or otherwise) may be uncomfortable with science engagement that explicitly embraces compatibility or integration between religious or spiritual beliefs and scientific concepts. However, such approaches can be aligned with best practices in science communication that recognize the role of community identity. As noted by climate communication researcher Dan Kahan, “People acquire their scientific knowledge by consulting others who share their values and whom they therefore trust and understand” [Kahan, 2012].

Impacts of faith community engagement

Science engagement that respectfully acknowledges the role of religion and spirituality in people’s lives can lead to positive outcomes for science discourse. Examples include fostering greater recognition of humanity’s impact on climate and the value of environmental stewardship [Webb and Hayhoe, 2017], increasing understanding and acceptance of evolution [Barnes and Brownell, 2017], and developing and implementing community-focused and evidence-based programs for public health [Foster et al., 2011].

For the DoSER program, participant feedback collected in post-event/post-project surveys is consistently positive [AAAS, 2015; AAAS, 2016; AAAS, 2019]. An

⁴<https://scienceligiondialogue.org/resources/sciencethewideangle/>.

⁵<http://www.theclergyletterproject.org>.

⁶<https://www.interfaithpowerandlight.org>.

⁷<https://biologos.org>.

⁸<https://sinaiandsynapses.org>.

independent evaluation of the Continuing Education for Pastors project found that participants reported (a) increased interest in science and faith intersections and in science more generally, (b) a view of science and religion as collaborative or independent rather than conflicting, and (c) increased likelihood to include science in congregational engagement as a result of their participation [AAAS, 2019]. Attendees at Engaging Scientists project workshops who were interviewed 6–12 months after their participation could articulate key themes and messages of the workshop content, and reported meaningful and lasting positive impacts on their public engagement work [AAAS, unpublished data]. Interestingly, few of the workshop attendees interviewed reported doing new forms of engagement with faith communities — instead, they reported incorporating workshop content into the courses they teach, into ongoing engagement activities and in personal relationships. This suggests that science communicators don't necessarily have to seek out faith communities to practice religiously inclusive engagement. Simply recognizing that most audiences will include people of faith can be valuable. It is important to note that most attendees and institutional collaborators for DoSER events are self-selected, representing individuals or communities already interested in science and faith discourse or in culturally inclusive engagement. Formal evaluation of the long term impacts of these projects is not yet available. Nevertheless, the popularity and positive responses to these programs suggest that they are addressing specific needs within both religious and scientific communities.

Concluding thoughts

Science engagement with faith communities is not without challenges. Tensions around some specific science topics that intersect with religious, cultural or political identity can be difficult for people to navigate, whether they are scientists, people of faith, or both [Ecklund, 2010; Ecklund and Scheitle, 2017]. Such tensions demonstrate the need to utilize best practices are impactful and constructive approaches for science engagement with faith communities. These best practices include:

- frameworks that emphasize respectful and equitable dialogue rather than one-way communication [Bertka et al., 2019; Foster et al., 2011; Matias, 2017];
- emphasis on science as a process and a way of knowing [Nelson et al., 2019]
- an awareness of the cultural and historical context of science practice and learning [Barnes and Brownell, 2017; Barnes, Elser and Brownell, 2017; Bertka et al., 2019; Glaze and Goldston, 2019];
- humanizing science through storytelling [Dahlstrom, 2014], the identification of shared values [Webb and Hayhoe, 2017], and a focus on awe, wonder, and curiosity [McPhetres, 2019];
- a mindset of cultural humility [Tervalon and Murray-García, 1998].

We encourage scientists and science communicators to reflect on how inclusion of religious and spiritual perspectives are addressed in (or absent from) their public engagement work, in their institutional culture and practices, and in their professional and personal networks. We also encourage science communication researchers to research the impacts of intentional faith community engagement,

including programs and initiatives referenced here. More robust evaluation of programs and initiatives to guide practice is sorely needed to ensure that future engagement approaches are evidence-based and effective.

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