Commentary

Science, Not Scientists: Reflections on Science, Culture, and Their Mediators

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Abstract

In this commentary, we lay out a research agenda for studying religion and science communication that moves beyond theological and moral tensions to include embodied knowledge practices and orientation toward particular vocational futures. Based on findings from a case study of a National Geographic Kids magazine tailored for Orthodox Jews, we argue that diversifying science communication includes navigating embodied knowledge practices and competing "imagined futures" regarding science-related vocations. Advancing recent conversations at the nexus of religion and science communication, our case study highlights the generative possibilities that arise when centering religion amid other processes of science communication diversification.

Keywords

science, religion, Judaism, national geographic, education

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A recent wave of studies has been devoted to diversifying science communication (Canfield et al., 2020; Dawson, 2019; Lewenstein, 2003; Seethaler et al., 2019). While most efforts have focused on the ways science is tailored for gender, race, and accessibility (Canfield et al., 2020), recent scholarship has also documented attempts to include religious sensibilities in science communication (Catto et al., 2023; Lewenstein, 2024; Mann & Schleifer, 2020; Seethaler et al., 2019; Taragin-Zeller et al., 2020, 2022, 2024). Tailoring for different religious groups requires a concerted effort to negotiate particular theological, cultural, and socio-political forms of knowledge, belief, and praxis (Taragin-Zeller et al., 2024). While it is imperative to work with distinct sets of beliefs to communicate with different religious audiences (Kahan, 2011; 2017), recent work has called attention to both the potential as well as ethical and political pitfalls of religious-sensitive science communication (Lewenstein, 2024; Taragin-Zeller et al., 2024).

One of the major challenges of integrating religious perspectives into science communication is that, often, religious and scientific knowledge-making operate according to different epistemological and ontological commitments (Bolger & Ecklund, 2018; Brooke & Numbers, 2011; Catto et al., 2023; Falade & Bauer, 2018; Hardin et al., 2018). Drawing mainly on studies of white protestants (typically in the United States), both public discourse and literature tend to amplify theological tensions while endorsing a "conflict narrative" (Evans & Evans, 2008; Evans, 2011) that primarily characterizes faith in stark epistemological opposition to science (Carlisle et al., 2019; Chan, 2018).

However, science cannot be relegated to the mind, alone; it is also a matter of values (Evans, 2018). Sociologist John H. Evans's book "*Morals not Knowledge*" (2018) offers a fresh path to study science-religion relationality. Evans challenges the notion that the conflict between religion and science can be reduced to incompatible ways of knowing. According to his analysis, American publics are only concerned with a few knowledge claims (what he calls: propositional beliefs), such as the age of the universe or how human life evolved. Instead of the common focus on intellectual and theological conflict, Evans persuasively demonstrates that the strongest and most motivating conflict between science and religion is, in fact, *moral*.

In this commentary, we argue that understandings of science and religion need to be taken one step further, to account for religion as more than a set of beliefs or morals. Building on previous attempts to diversify this field beyond Christian perspectives (Bolger & Ecklund, 2018; Brooke & Numbers, 2011; Catto et al., 2023; Ecklund, 2020; Jones & Catto, 2019; Noy & O'Brien, 2016; Schneider & Bolger, 2021; Thomas, 2021), we use the context of Jewish Orthodoxies and science (Fader, 2020; Kasstan et al., 2022; Pear,

2018; Raucher, 2020; Rock-Singer, 2019) to shift away from theological and moral tensions and focus on distinct cultural types of tailoring science. Seen this way, religion, insofar as it is a form of culture, comes along with its own embodied knowledge-making practices and orientation toward particular futures, that are created through science communication. These imagined futures form the basis of cultural reproduction, and thus, lie at the heart of science communication.

To illustrate our point and call for nuanced attention to the nexus of science communication, culture, and religion, we draw on preliminary findings from a study of Haredi-Jewish cultural translation of the pioneering publication of *Niflaot Olam* (Hebrew: "Wonders of the World"), the first "kosher" Haredi National Geographic magazine, launched in March 2021. Our findings highlight the imaginary trajectories generated through science communication, raising educational, gendered, and political questions regarding science, culture, and their mediators.

Case Study

As a case study, we draw on our analysis of the pioneering publication of Niflaot, the first "kosher" National Geographic magazine, launched in March 2021, designed to serve the needs of the Haredi (Ultra-Orthodox Jewish) public. Before we present a sample from our findings, a brief introduction to Haredim and science is in place. Haredim (Ultra-Orthodox Jews) account for roughly 12.6% of Israel's population (Israel Central Bureau of Statistics [ICBS] 2020). Haredi men and women live according to the Hebrew Bible, which has been continuously interpreted through a large (and ever-growing) body of rabbinic literature and Jewish law. Socially, Haredim are considered part of an enclave culture (Caplan & Leon, 2023; Golan & Mishol-Shauli, 2018; Stadler, 2009) with strict social and symbolic boundaries that distinguish them from other streams of Judaism: Progressive, Conservative, and Religious-Zionist. Notably, this includes the avoidance of secular education and professional training, primarily for men (see Cahaner et al., 2019; Caplan & Leon, 2023; Author). Haredi education prepares children for gender-specific roles—men are to become religious scholars and women are prepared to support them as main breadwinners and domestic caregivers. Typically, most male students do not learn any science beyond fifth or sixth grade (ages 11–12 years). However, due to growing economic pressures, some Haredi families have sought to supply their children with educational tools to access higher-income careers (see Baram-Tsabari, 2022). With little formal science education, Haredi parents have recently begun to search for informal educational alternatives, and Niflaot is one such option.

Making Science Kosher

Niflaot was launched in 2021, offering a Haredi version of National Geographic for children. Niflaot, just like National Geographic Kids Israel, is a global partner of National Geographic (NG) Kids US. As a global partner, Niflaot is licensed to use NG Kids US' content and branding in their magazine. However, rather than merely translating content from English into Hebrew, Niflaot's editorial team takes additional editorial steps to tailor the magazine to Haredi audiences. First, Niflaot's editorial team selects individual articles from the entire backlogged corpus of National Geographic Israel and puts them together to create its own, curated monthly magazine. Next, Haredi graphic designers are hired to produce new Haredi-tailored imagery to accompany the edited articles. Finally, each issue is run past a rabbinic supervisory team, which reviews the magazine for content and imagery that may violate Haredi interpretations of Halacha (Jewish law), before issuing a "kosher" certification.

By following this process and comparing it with the process of translation undertaken by a similar (but irreligious) NG Kids global partner—NG Kids Israel—we were able to make several observations about the type of content and design changes Niflaot made in order to be suitable for Haredi audiences. We found evidence of editorializing designed to address epistemological conflicts, moral conflicts, and—significantly—conflicts in the construction of imagined vocational futures.

Without dwelling at length on the former two forms of conflict (that have been widely studied), it is worth mentioning one illustrative example from each category. First, is the conspicuous absence of content related to evolution and the age of the universe. While NG Kids US and its Israeli global partner, NG Kids Israel, both included content related to dinosaurs and prehistoric human history, these topics were expunged from Niflaot's pages. This tallies with Unsworth and Howard Ecklund's (2021) findings in the American Christian context.

Likewise, echoing Evans' (2018) moral conflict model, Niflaot was careful to remove any content related to sexuality and reproduction. For example, in NG Kids Israel, a "Fun Facts" article describes the Bee Orchid, a flower that evolved to resemble a queen bee as a way of attracting male bees, which land on the flower and help it reproduce. In Niflaot, this same article—identical in every other aspect—omits mention of the Bee Orchid, replacing it with a different fact about venomous snakes. While human reproduction is clearly a taboo topic in Haredi culture (see Taragin-Zeller, 2023), omitting bee reproduction reveals that it is not just human sexuality that must be removed but also any other forms of reproduction.

This "removal" (see Taragin-Zeller et al., 2024) of references to the age of the universe and reproduction, even among flowers, is representative of the way Niflaot handles scientific knowledge that is considered "dangerous" or potentially "heretical." In addition to these two types of conflict, the most striking strategy we found in our study was tailoring science to align with particular vocational imaginary futures. While Niflaot seeks to educate children on matters of science, it takes great care not to generate any aspirations of *becoming* scientists. As Sara from the editorial team explained:

> In NG Kids Israel they write a lot about the future. For example, they will have a picture of a child hugging a panda, with a question—do you also want to become a panda hugger? Something like that will not happen with us. Everyone needs to be a head of a *Yeshiva*!

Within Haredi culture, where men are meant to spend their lives studying the Torah, the head of the *Yeshiva* (religious seminary) is the ultimate vocational aspiration. Sara's clear omission of any other types of vocational trajectories offers a clear reminder of how it is not just scientific content that must be tailored but also its cultural representations. In other words, the scientists must resonate with inner-communal sensibilities about vocation, religion as well as gender roles.

In order to bridge this gap—between the desire to supply children with science literacy without generating any aspirations to become scientists—other forms of authority must be integrated to legitimize scientific knowledge. This is reflected in the way that Niflaot makes use of religious authority to legitimate its claims. Niflaot stands out for its use of religious figures as authoritative speakers on science topics, featuring a significant number of religious speakers on its pages. (This is in contrast to the other two magazines, which rely exclusively on scientific and professional speakers.) Likewise, the image of "the scientist" presented in Niflaot differs significantly from that of NG Kids US or NG Kids Israel. Whereas NG Kids US features many pictures of adult scientists and children dressed as scientists, Niflaot features far less. There is also a gendered element to the differences in scientist representation between the magazines, with NG Kids Israel featuring far more images of girls and women as scientists, while Niflaot almost exclusively uses images of men. In other words, the image of scientific authority in Niflaot looks less scientific, more religious, and more male than its counterparts.

Taken together, our findings indicate the following about imagined futures in science communication: first, we found that parents want their children to learn about science because they believe that introducing them to STEM will

allow them a better future, primarily in the context of education and employment. While scientific knowledge is important and reported systematically, Haredi editors' efforts focus on minimizing the exposure to the conveyors of scientific knowledge. Science has not only a voice, but a face, and it is this face that must be obscured.

Though this is done to make science legible and legitimate to the Haredi public, it also raises questions about the consequences of these editorial choices. From an educational perspective: what are the consequences of depicting religious figures with little science education to promote science education? From a gender perspective, what are the consequences of hiding female scientists, when they are already underrepresented in science? And, finally, what are the political consequences of this Haredi face of science, especially for the younger generation? Will it provide legitimacy for more religious scientists, or rather marginalize science and scientists even more?

While it is difficult to know where all this will lead, what is clear from our findings is that science is in, but scientists are out. Our most striking evidence to support this assertion is that scientific aspirations were cast aside on every occasion. As demonstrated earlier, children are being taught to engage with science but continue to dream to be Torah scholars.

Religious-Sensitive Science Communication

Addressing the challenges of diversifying science communication, Bruce Lewenstein (2024:9) has recently asked: "What happens when those new voices bring knowledge that is fundamentally opposed to the Enlightenment, reductionist model of modern science?." Our findings build on a long-standing assertion that knowledge production is always cultural (Franklin, 1997; Haraway, 1988; Latour, 1987), and so is science communication. As Priest, Goodwin, and Dahlstrom (2018) remind us: "Science communicators come from many backgrounds and work toward different—sometimes competing—objectives" (p. 2). Our study sets the ground to examine the different faces of science as it is tailored to "fit" various religions and regions.

Our work points to the generative possibilities that arise from centering religion alongside other processes of diversifying science communication. Advancing recent conversations at the nexus of religion and science communication (Evans, 2018; Jones & Catto, 2019; Lewenstein, 2024; Taragin-Zeller et al., 2020; 2022; 2024), the findings of this case study point us toward a broader research agenda:

1. Religion needs to be seriously appraised in efforts to diversify science communication. Part of this consideration involves acknowledging

that religion means very different things in different regions of the world. We must build tools to study science communication in ways that go beyond American Protestant Christianity and take into account different state-religion relationalities.

2. Religion's role in science communication needs to be considered beyond mere belief (Catto et al., 2023) or morality (Evans, 2018), but also as a set of embodied practices.
3. Diversifying science communication necessarily means incorporating differing imaginations of the future. Science communication is not just about the history of science, nor is it just about contemporary concerns. Science communication is also about the future.

Diversifying science is one of the most ethical imperatives today. As science communication continues to benefit specific (e.g., affluent, college-educated, and non-disabled) audiences (Canfield et al., 2020), we must do better at understanding the ways science gets diversified, even in the most unexpected ways. As such, we call upon scholars to consider the following questions in their own work: What particular challenges inform religious-sensitive science communication in your region/site? In addition to conflicting epistemologies or values, what types of embodied cultures are negotiated through science? What type of conflicts over imaginary futures is part and parcel of science communication? And how do these link to broader political, religious, and cultural structures and inequalities?

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