

The Need for Knowledge- Based Journalism in Politicized Science Debates

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Largely overlooked by researchers studying the science of science communication are the specific journalistic practices and media structures that might enable more constructive public debate in politicized science controversies. In this commentary, we discuss the role that journalists can play as influential knowledge professionals, drawing on insights from the studies in this section of the special issue. In doing so, we outline three complementary approaches to what Thomas Patterson calls “knowledge-based journalism.” By way of these approaches, journalists and their news organizations can contextualize and critically evaluate expert knowledge; facilitate discussion that bridges entrenched ideological divisions; and promote consideration of a broader menu of policy options and technologies. We conclude by discussing the implications for journalism education.

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The studies in this section of this special issue of *The ANNALS* are representative of an important trend over the past decade, as an increasing number of social scientists have analyzed political conflicts related to science, technology, and the environment. This research, on what the U.S. National Academies calls the “science of science communication,” has focused on topics including the communication strategies of the expert community, the impact of worldviews on acceptance of expert advice, and the relevance of the media to public opinion (Scheufele 2013). Yet largely overlooked by this growing network of researchers are the specific journalistic practices and media structures that might enable more constructive public debate.

In this commentary, we detail the role that journalists can play as influential knowledge professionals in these conflicts, drawing on

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insights from the studies in this section and other recent scholarship. In doing so, we outline three complementary approaches to what Harvard University's Thomas Patterson (2013) calls "knowledge-based journalism." By way of these approaches, journalists and their news organizations can contextualize and critically evaluate expert knowledge, facilitate discussion that bridges entrenched ideological divisions, and promote consideration of a broader menu of policy options and technologies.

Science Debates in Our Polarized Media Culture

In today's ideologically divided media culture, instead of providing context or analysis, many bloggers, commentators, and advocates specialize in provoking moral outrage, spreading partial truths about opponents, promoting dire forecasts of doom, and exaggerating the evidence in support of their preferred positions. As Kahan and colleagues (this volume) warn, these features of today's media discourse make highly salient the type of culturally antagonistic meanings that distort perceptions of expert advice and polarize public opinion. Moreover, as Yeo and colleagues (this volume) demonstrate, some media outlets have so effectively branded themselves as reliably ideological that if given the choice, their respective partisan audiences will quickly turn to them as preferred sources of information, even for a politically unfamiliar topic such as nanotechnology.

Over the past decade, as Nisbet and Markowitz (this volume) describe, scientists and their organizations have found themselves increasingly at the center of politicized media spectacles, not only in many cases as the target of outrageous attacks by conservative commentators, but also as allies of efforts by liberals to fight back. Yet by redefining these conflicts with conservatives as "us versus the radical fringe," liberals and their confederates among scientists have at times substantially reduced opportunities for media discussion to focus on innovative ideas, technological alternatives, and practical approaches to problems such as climate change. Moreover, scientists and experts who break with conventional perspectives or attempt to cross the fault lines of our polarized media culture have in some cases become the targets of misleading attacks by liberal bloggers and journalists, "debunked" as misinformers, flogged as "contrarians" and "confusionists," and been accused of aiding the enemy (see Nisbet and Scheufele 2012 for a review).

In all, such political crossfire creates strong disincentives for a broad middle range of experts to engage with journalists or express their viewpoints, leaving

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media debate to be dominated by voices representing the ideological tail ends of opinion. Employing a term from cultural cognition research, journalist Ezra Klein (2014) in a recent profile of Dan Kahan aptly summarizes the impact of our polarized political culture on complex science-related debates:

Washington [DC] has become a machine for making identity-protective cognition easier. Each party has its allied think tanks, its go-to experts, its favored magazines, its friendly blogs, its sympathetic pundits, its determined activists, its ideological moneymen. ... And so these institutions end up employing a lot of very smart, very sincere people whose formidable intelligence makes certain that they typically stay in line. To do anything else would upend their day-to-day lives. (Klein 2014)

Further compounding these trends, over the past decade, in the wake of major cuts in their science reporting staff, when major newspapers have covered science-related debates, these issues have increasingly been written about by a political reporter, columnist, editorialist, or op-ed writer. In contrast to experienced science journalists, political reporters and commentators tend to focus not on the more thematic substance of the issue at hand, but rather on the strategies and tactics employed by competing elected officials and interest groups, and how these strategies might play out politically (Nisbet, Brossard, and Kroepsch 2003).

It is under these conditions, when coverage shifts from the science beat to the political and opinion beats, that “politicization,” tracked by Fowler and Gollust (this volume) in their study of the HPV vaccination and mammography debates, is most likely to occur. Over time, as coverage of these issues repeats clashing interpretations without contextualizing such claims, studies suggest that polarization among the most politically attentive partisans will deepen (Nisbet 2014). Not only does political coverage divide, but as Fowler and Gollust (this volume) warn, these conflict narratives also undermine overall public trust in experts and government officials and reinforce public cynicism about whether a problem can ever be resolved.

Inadequate Responses to the Problem

In recent years, scientific organizations and allied funders have strongly encouraged scientists and other experts to invest in their own personalized social media strategies and blogging platforms as a way to offset the loss of quality news coverage and as a strategy to counter the spread of false information. Yet even in the aggregate, it is unlikely that the social media efforts of scientists can compete with well-financed advocacy groups and aligned media outlets that flood targeted social media channels, nor are experts likely to provide by way of their blogs the professionalized, regular content that only experienced science and environmental reporters can deliver.

Fact-checking initiatives by journalists and organizations have also been promoted as tactics to combat the spread of misinformation and false beliefs. Yet as Patterson (2013) argues, narrowly focusing on fact-checking will do very little to alter the type of polarized views identified by Kahan and colleagues (this volume)

and may only reinforce motivated reasoning. Nor will fact-checking overcome the strong selective exposure tendencies tracked by Yeo and colleagues (this volume), or fundamentally alter the ritual tendency by political journalists to reframe every science debate as just another power game among competing ideological teams.

In many cases, fact-checking itself may actually distort the nature of expert knowledge, especially on topics such as climate change or nanotechnology in which experts disagree on the likelihood of specific risks and the actions to address those risks. Indeed, if truth defined as “accuracy of facts” is the test for public debate, then “whole areas of public life would be walled off because they are the subject of conjecture,” writes Patterson (2013). As he continues:

Knowledge does not always yield precise answers. It can complicate the reporters’ task by alerting them to what’s not known as well as to what’s known. Sometimes, the effect of knowledge is to unearth new questions or uncertainties. Even the “facts” can be elusive. Once they are determined, facts serve as points of agreement, but they are not easy to pin down. (2013, 70)

Over the past decade, several highly valuable foundation-funded and university-affiliated journalism initiatives have emerged, including *Yale Environment 360*, *Yale Climate Connections*, the University of Minnesota’s *Ensis* magazine, and American University’s Investigative Reporting Workshop. These projects provide important context-based reporting and analysis while also calling attention to new ideas, voices, and solutions. Indeed, the promise of these university-based models can be further maximized if replicated across many campuses and shifted to focus in partnership with local media on the information needs of specific states and regions. Yet to date, as Patterson (2013) emphasizes, the total amount of resources invested in such nonprofit news ventures accounts for a tiny fraction of the losses in resources, staff, and coverage at major national and regional newspapers.

In recent years, other nonprofit media organizations such as *Mother Jones*, *The Nation*, *Grist.org*, or *InsideClimate News* have built up sizable online audiences and received prestigious awards including the Pulitzer Prize. Yet these foundation-funded media operations also raise questions about the boundaries between journalism and advocacy. On climate change, for example, many of the same foundations and donors supporting these journalistic ventures are also the main financial supporters of the leading environmental organizations and activist groups. The aggressive branding by these media organizations as “liberal” or “progressive” voices doing battle against conservative “deniers,” all the while seeking truth and justice in American politics, intentionally plays to a self-selected audience and to the advocacy goals of funders. As a consequence, despite valuable instances of in-depth reporting, most commentary and analysis at *Mother Jones*, *Grist.org*, and *The Nation* too often reflect the moral outrage and antagonistic cultural meanings that distort rather than contextualize science-related debates.

In sum, even with the best intentions of expert bloggers, fact-checkers, and nonprofit journalists, if society is going to successfully navigate politically

contested science issues, we need big budget commercial ventures that prioritize in-depth coverage. Indeed, given the complexity of these issues, our society requires ongoing, dedicated sources of context-focused journalistic coverage produced by news outlets and professionals who neither cater to nor depend on meeting the expectations of a particular ideological audience or network of philanthropic donors.

Doing Knowledge-Based Journalism

In this regard, Patterson (2013) and colleague Wolfgang Donsbach (2014) offer valuable insights that can inform new approaches to coverage of complex public affairs issues including politically contentious science-related debates. In his book-length assessment, Patterson calls for a new “knowledge-based journalism,” in which journalists excel not only at interviewing, investigating, and storytelling but also in applying relevant specialized expertise to coverage of public affairs. “If news is to be a means of getting people to think and talk sensibly about public affairs,” he writes, “it needs to contain the contextual information that enables citizens to make sense of events” (p. 93). In a related journal article, Donsbach similarly calls for journalism to stake out its role as society’s “new knowledge profession.” As he writes, echoing Patterson, a specialized understanding of an expert field enables journalists to make “sound judgments on the newsworthiness of events, only then can they ask critical questions to the actors, find the right experts, and only then can they resist infiltration of non-professional factors into their decision-making” (p. 668).

Not only is “content” knowledge of a subject such as economics or environmental science needed, argue Patterson and Donsbach in their respective works, but so too is “process” knowledge. This second dimension includes recognition of what social science research suggests about the factors that influence journalists’ news judgments, as well as the effects of news coverage decisions on audiences. Process knowledge can, for example, be applied by journalists to guard against personal biases and mistakes, to choose among different storytelling techniques that more effectively engage audiences, and to take advantage of various digital tools to enhance understanding and reach.

But what are specific approaches to knowledge-based journalism that effectively engage audiences on complex, science-related issues while also helping to diffuse—rather than amplify—the type of “antagonistic cultural meanings” identified by Kahan and other researchers? We describe three complementary approaches, drawing on examples of journalists covering debates related to climate change, energy, and food.

The knowledge broker

In this role, knowledge-based journalists open up the process of expert knowledge production for their readers, examining how and why scientific research was

done, sometimes positing alternative interpretations or drawing connections to ongoing debates about a complex problem such as climate change or obesity. The emphasis is on taking the public “back stage,” behind the curtains and the theater that typify press releases and traditional news stories; to focus on the institutions, assumptions, ideologies, political factors, and personalities that influence the production of expert knowledge (Nisbet 2013).

In his role as an informed critic of climate science, Andrew Revkin at his *New York Times*’ Dot Earth blog frequently warns of the tendency to hype scientific findings relative to climate change and to overlook the inherent uncertainty in research. He is critical of the process by which institutions and journals “pump up the volume” on a specific research finding. This hyping, explains Revkin, becomes amplified by advocates and bloggers on either side of an environmental debate and by news organizations and reporters “at the end of the chain” who have the incentive to search for “the front page thought” (Wihbey 2011).

Revkin is particularly critical of advocates, bloggers, and journalists who draw direct causal links between specific extreme weather events and climate change. In a 2012 post at Dot Earth, he warned of the “intense rush to use Hurricane Sandy as a teachable moment to focus the public (and politicians) on the risks of an unabated buildup of greenhouse gases and resulting global warming” (Revkin 2012). In a second example, Revkin explained in a 2014 post “why it’s important to get beyond headlines—including the titles of papers—in considering new research pointing to the inevitable ‘collapse’ of ice sheets in West Antarctica.” He drew on interviews with scientists and linked to relevant resources to explain why some reporting and commentary about the studies were “completely overwrought,” implying for readers that the “collapse” of the ice sheets signified an “imminent crisis” (Revkin 2014).

At Dot Earth and in talks, Revkin often refers to a figure that displays different distributions or “curves” of scientific knowledge relative to climate change: “When you get more specific, you can see that the level of confidence and range of views on each aspect of greenhouse-driven climate change, from the basic physics onward, has a different ‘shape.’” There is “clear cut” convergence among experts that more carbon dioxide equals a warming world, as he explains, but on specific impacts such as increasing the intensity of hurricanes or the pace of sea-level rise, there is a much broader distribution of scientific opinion. That range of opinion, he argues, should be reflected in news reporting (Wihbey 2011).

Revkin’s knowledge broker style is emulated by several early career journalists covering the environment beat today. For example, in an article at Vox.com, Brad Plumer (2014) contributed a feature that captures many of the qualities of this approach. Pegged to the release of the latest Intergovernmental Panel on Climate Change report, Plumer explained to readers why the goal of limiting average global temperatures to 2 degrees Celsius above preindustrial levels was “increasingly delusional.” In doing so, he detailed the origins of the goal, interviewed experts who questioned whether the goal remained attainable or even useful to the debate over climate change, and discussed what these experts proposed as alternative approaches to defining climate policy targets.

Knowledge brokers can also at times work at the interface between journalism and specialized academic fields. In this case, as French scholar Morgan Meyer

(2010) writes, knowledge brokers do more than just describe, assess, or critique science, they also transform knowledge by offering new interpretations and conclusions that then influence the thinking of scientists and other experts. A leading example is Gary Taubes, author of several books including *Good Calories, Bad Calories* (2007), and contributor of related articles to *The New York Times* magazine. Through his critical review of the history of nutritional science, Taubes has helped to generate scientific, media, and philanthropic attention to the misguided embrace of “low fat” foods as healthy, arguing that these foods are typically rich in sugars and carbohydrates and therefore a leading cause of obesity, type 2 diabetes, and heart disease. In 2012, with foundation support, Taubes cofounded The Nutrition Science Initiative, which brings together interdisciplinary scientific teams to conduct controlled clinical trials to examine the relationship between diet and health problems.

The dialogue broker

As the news industry invests in a range of innovative digital initiatives, a second complementary approach to doing knowledge-based journalism is likely to prove particularly relevant. In this dialogue broker method, an expert journalist uses blogging, podcasts, video interviews, Twitter, Facebook, and other social media tools to convene interconnected, cross-platform discussions among a professionally and politically diverse network of contributors and readers.

Not only does this networked journalism approach aid efforts to contextualize and critically evaluate science-related debates, but the method is also guided by a philosophy that cross-cutting dialogue can help readers to better understand—and therefore accept—why they may disagree with others. On a complex debate such as that around climate change, argues New York University’s Jay Rosen (2012): “There is no kumbaya moment. You never get everyone on the same page,” and you never reach consensus. Yet as he continues, “what’s possible is a world where different stakeholders ‘get’ that the world looks different to people who hold different stakes.”

Revkin at his Dot Earth blog not only functions as an explainer and informed critic of science (knowledge broker), but he also serves as a skilled convener (dialogue broker), using his blog and a variety of other digital tools to facilitate discussions among experts, advocates, and readers while contextualizing specific claims. As he described his approach in an interview with us: “The blog is very different than most in that most blogs are built to provide a comfort zone for a particular ideological camp. ... I’m not here to provide you with a soft couch and free drinks if you’re an enviro or if you are a conservative. It’s a place to challenge yourself” (Fahy and Nisbet 2011, 783).

Nathanael Johnson’s 2013 series on genetically modified (GM) food at Grist.org is another example of a dialogue broker approach to a politically contentious topic. His goal in the series was to broker a conversation between critics and proponents of the technology, and through that dialogue promote a shared understanding of why people disagree so strongly on the subject. As Johnson (2013) wrote, there is obvious value to journalists attempting to broker such a

conversation for their audiences, especially on an issue such as GM food in which many Grist.org readers tend to doubt its safety and distrust the scientists who argue on behalf of the technology:

If you try to cross-check the claims of people on either side of the GM debate, you run into problems, because these warring clans speak different dialects. Their foundational assumptions point them in opposite directions, facing different landscapes and talking past each other. This can leave outsiders feeling that someone is lying. But often the miscommunication comes down to a difference in perspectives.

The policy broker

In a third complementary role, journalists can help to diffuse polarization in science-related policy debates by expanding, through their coverage, the range of policy options and technologies under consideration by the public and political community. This policy broker model reflects arguments by Roger Pielke Jr. (2007), who demonstrates through a series of case studies that the broader the menu of policies and technologies available to decision-makers in science-related debates, the greater the opportunity for decision-makers to reach agreement on paths forward. Pielke's conclusions are similar to those of Kahan and colleagues here. Their findings suggest that perceptions of culturally contested issues such as climate change are often policy and technology dependent and that polarization is likely to be diffused under conditions where the focus is on a diverse rather than narrow set of proposed options.

If we apply this line of reasoning to knowledge-based journalism, it follows that a constructive role for journalists to pursue would be to evaluate an expansive and diverse portfolio of policy actions and technological solutions. Consider that from 2007 to 2010, as national climate legislation was debated in the United States, among those arguing for action, the focus was on setting a price on carbon and investing in the "soft energy path" of wind, solar, and energy efficiency strategies. In contrast, there was much more limited attention to innovative "hard energy path" technologies that would help to reduce emissions including nuclear energy, natural gas, and carbon capture and storage. Nor was there adequate focus on the need to invest in climate adaptation efforts (Nisbet 2011).

In the years since the demise of cap and trade legislation, several notable journalists serving in the role of policy broker have helped to diversify the range of technological options considered in the climate debate, calling greater attention to "hard energy path" technologies. In a 2014 cover story for *Wired* magazine titled "Renewables Aren't Enough. Clean Coal is the Future," veteran science journalist Charles C. Mann focused on the rapid growth in China of coal-generated electricity, a trend of deep concern to scientists and other experts (Mann 2014). But as he explained, successfully developing carbon capture and storage technology could allow China and other countries to slowly reduce their addiction to coal-generation while also reducing their emissions. This makes carbon capture and storage technology, according to Mann, potentially "more important—though much less publicized—than any renewable-energy technology for

decades to come.” Mann employed a similar policy broker approach in a 2013 cover story at *The Atlantic* in which he introduced readers to emerging methane hydrate extraction technologies that were likely to produce abundant, cheaper sources of natural gas (Mann 2013). This technology combined with shale gas extraction could replace our reliance on more greenhouse gas intensive coal-generated power but may also, he argued, prevent renewable technologies from ever becoming economically viable.

Shifting Expert, Professional, and Educational Outlooks

The studies and issues addressed in this section of *The ANNALS* underscore the need for the news industry and journalists to fulfill a vital function as society's new class of knowledge professionals, not only relative to public affairs generally, but especially in relation to politically contentious science-related debates. But journalists and their news organizations should not be left to navigate this change on their own.

In this regard, a broad middle range of experts can play an important role by making it easier for journalists to engage in context-based coverage and cross-cutting discussions of complex issues. Rather than viewing their blogging as replacing journalistic coverage, political scientists Brendan Nyhan and John Sides (2010), for example, recommend that experts would be better served by using their translation efforts as a resource that helps journalists to more effectively identify relevant storylines and put issues into context (a recommendation that Sides and his colleagues have successfully pursued by way of their *Washington Post*-hosted “Monkey Cage” blog).

Taking this strategy a step further, at Harvard's Shorenstein Center, Patterson and colleagues launched the “Journalist's Resource” website. On a daily and weekly basis, the project provides accessible summaries of new studies and research across fields, connecting this research to trending news topics, curating each post as part of a searchable open-access database, and promoting its content by way of a diversity of social media tools. Journalist resource staff also conduct interviews with leading journalists and experts about their work and, for educators, archive sample course syllabi and other related materials.

Yet even with the help of experts and universities, if the major news organizations are going to reallocate resources to coverage of complex public affairs debates such as those addressed in this special issue, a financial case will need to be made. In this regard, Patterson (2013) draws on several studies to warn that the news industry suffers from a reputational crisis that threatens its bottom line. The journalists' challenge, writes Patterson, is not to cater to audience interests but to take important issues like climate change and make them interesting. News organizations investing in knowledge-based journalism, he argues, are more likely to produce content that audiences consider worth searching for and recommending to others, giving the news organization enduring relevance and audience share in a world of many online choices.

The launch in 2014 of several innovative digital news ventures focused on deeper forms of explanatory, analytical, and data-driven journalism suggests that at least some leaders within the news industry have reached similar conclusions. Vox.com, cofounded by former *Washington Post* “Wonkblog” writer Ezra Klein, focuses on explanatory journalism with a type of Wikipedia-like tagging of terms and concepts that gives readers an in-depth background on an issue, delivered by way of the latest digital design techniques (Klein, Bell, and Yglesias 2014). “The Upshot” at *The New York Times*, a blog-like section launched in coordination with a redesign of the paper’s website, aims to enhance reader understanding of news through analysis and data visualization, enabling readers to “grasp big, complicated stories so well that they can explain the whys and hows of those stories to their friends, relatives and colleagues” (Leonhardt 2014).

Nate Silver’s 538 at ESPN.com features a roster of writers engaging in Silver’s popular brand of data-driven journalism. Eschewing traditional journalistic approaches, Silver updates a form of what Philip Meyer (2002) originally dubbed “precision journalism,” replacing interviewing and personal observation with “ways of collecting information, such as by commissioning polls, performing experiments or scraping data from websites” (Silver 2014). Finally, the *Washington Post* also has plans to relaunch a version of its Wonkblog with the mission to “explain and illuminate complicated policy topics for our audience.” To do so, *Post* journalists will employ a “variety of frontier-pushing approaches to engage readers in conversations about how to solve America’s biggest problems” (*Washington Post* 2014).

These news ventures are not without their limits and trade-offs and have yet to prove their sustainability. That said, for many university journalism programs, they should be viewed as the latest point of evidence that they need to rethink their traditional trade school focus on interviewing and storytelling skills. Indeed, with journalism programs under pressure because of flagging enrollment, their future may depend on shifting to more effectively meet the needs of society. In response to this challenge, as Patterson (2013) details, in 2005 the Carnegie and Knight Foundations funded a multiyear initiative encouraging top journalism programs to focus on developing among students “subject” knowledge in specialized domains such as environmental science, as well as “process” knowledge of the factors influencing their work as journalists and its impact on audiences. In a somewhat different yet complementary approach recommended by Tom Rosenstiel (2013), the University of Toronto is recruiting academics and professionals with existing subject matter expertise and training them to pitch stories to news organizations as freelance journalists covering their own disciplines. Other innovative examples of curriculum reform include recently launched graduate programs at Northeastern University and American University that provide specialized training to students in computer science, data visualization, and media entrepreneurship.

In all, the complementary approaches to knowledge-based journalism that we outline in this commentary are a starting point for scholars, professionals, and students to consider, evaluate, and learn from, as they experiment with narrative forms, news platforms, and digital tools. Collaboration, vision, energy, and leadership will be

needed to bring these hoped for shifts in journalism and education, but, in the process, there are already many bright examples to learn from and build upon.

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