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Review /

Bienvenido León y Michael Bourk (Eds.)

Communicating science and technology through online video: researching a new media phenomenon

Published by Routledge, New York (2018), 140 pp.

At the birth of the internet and the worldwide web, it seemed that human beings had discovered a new tool that would deliver bounties of knowledge previously unimaginable. Here were the channels for spreading truths about the world that would topple dictators, reveal corruption, democratize learning, and liberate people from ignorance, superstition, and propaganda. Of course, all of those things came to pass, to some degree. Meanwhile the powerful interests that benefit from controlling rather than liberating people, from concentrating wealth in a few hands rather than sharing it, and from discrediting science rather than harnessing its discoveries have transformed the internet into a swamp of misinformation, disinformation, and propaganda as well. Such is the context for this collection of 10 essays by leading scholars of online communication, which analyzes 826 online videos on three topics: climate change, vaccinations, and nanotechnology. The essays examine this new media genre from various perspectives: producers of content, audiences, distribution channels, video formats, narrative techniques, and producer objectives, among others, to evaluate its impact and effectiveness. Online science video takes many forms, ranging from three- or four-minute video blogs created for YouTube to full-length documentaries and TV series transferred to video with narration by such luminaries as Neil deGrasse Tyson, whose *Cosmos: A Spacetime Odyssey* series ran first on Fox television and the National Geographic Channel. However, a recurring theme throughout the studies in this book is that scientific institutions, such as universities, rarely treated studies of climate change or vaccines as issues of controversy; they stuck to presenting the facts. They did not attempt to engage viewers by placing the topics in a political-social frame or an economic-financial frame. User-generated content, however, was much more likely to polemize the controversies surrounding climate change and vaccines and use these non-scientific frames for their arguments. Nanotechnology did not arouse controversy or appear in many videos, perhaps because of the technical nature of the topic or its limited presence in political and economic spheres. In one chapter –When science becomes controversial– María Carmen Erviti, José Azevedo and Mónica Codina studied how interest groups, lobbies, and online users have mobilized around the issues of climate change and vaccines. Communicators of scientific information face the challenge that “misinformation is sticky” and “attempts to correct misinformation often spread false beliefs even further” (pp. 41-42). Journalists in particular tend to contribute to the problem. They usually lack the expertise to determine whether, for example, science shows that vaccines cause autism, so they simply present both sides of the controversy and leave it for viewers to decide. This kind of false equivalence has been described by journalism analyst Jay Rosen as “the view from nowhere” that allows politicians and public figures to simply declare validated scientific research as false facts (The view from nowhere, PressThink, 2003, retrieved from <http://archive.pressthink.org/2003/09/18/jennings.html>). Both sides of the controversy on climate change were sometimes guilty of oversimplifying research in order to buttress their arguments, the researchers concluded. Science video is a popular online format. Jose Alberto García-Avilés and Alicia de Lara developed a typology of 18 different video formats (p. 20). Online video generally has proliferated with the rise of smartphones, 4G technology, and social media channels for distribution. Traditional television producers have managed to find ways to monetize science video, and new free or inexpensive software tools for video recording and editing have made it easier for individuals and small organizations to produce high-quality content at relatively low cost. An analysis of the narrative forms used by producers of science video revealed little innovation. Researchers Lloyd S. David and Bienvenido León found that most of the online videos replicated the traditional documentary style or attempted to generate an air of authenticity using a *cinéma vérité* style. Miquel Francés and Àlvar Peris analyzed the scientific rigor of the videos by using a panel of experts –75 were selected for each of the three topics (again, climate change, vaccines, and nanotechnology)– and each answered eight questions about 10 randomly selected videos in their area of expertise. In response to the question, “The video has scientific rigor”, only 33% of the responses about climate change were “I strongly agree,” and only 43% about vaccines elicited that response (p. 70). As the editors observe in their concluding chapter, “2017 was a tumultuous year in communication and not just for hard science disciplines but for all forms of rational, empirical evidence-based argument built on reliable data”. It was a year that saw “the weaponization of information” by troll farms that made enormous financial profits from distributing deliberately falsified, sensationalized information designed to promote responses, sharing, and traffic that would produce page views and ad revenue (p. 124). Bad journalism and bad science, it turns out, are highly lucrative activities. The editors recommend that scientific institutions and the media play a bigger role in spreading accurate scientific information to the general public. Government and foundations that fund scientific research could do more to develop communication programs that promote scientific literacy. Finally, communicators of science need to be adopting the latest visualization technologies and narrative formats to communicate in the most effective and efficient ways possible. Otherwise, the false narratives may drown out evidence-based research and conclusions.

James BREINER

jbreiner@unav.es