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11

ENVIRONMENTAL COMMUNICATION AND MEDIA: CENTERS, PROGRAMS, AND RESOURCES

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Environmental issues are some of the most global, complex, and significant problems today. They threaten our quality of life, but they are politically polarized and characterized by hyperbole, disinformation, and public skepticism. The media can affect people's perceptions of the environment (Ader, 1995; Besley & Shanahan, 2004; Corbett & Durfee, 2004; O'Donnell & Rice, 2008) given that many Americans live in urban settings with little direct experience of the outdoors. Media in the broadest sense of the term—including books, magazines, films, television, news, Internet websites, videogames, and podcasts—are for many people a major source of environmental information. Moreover, media appear to play an important role in winning public support for environmental movements (Brulle & Jenkins, 2008). The media's role as attitude changer is particularly important within the context of contemporary environmental problems, which are perceived to be both abstract and distant (whether in place or time) by many Americans. Public reaction to environmental news also has

the indirect effect of generating additional news, thus raising the agenda even more and therefore influencing politicians and policy makers (Dasgupta, Laplante, & Meisner, 2000).

There are many varieties of environmental media and communication, such as science content in school, environmental activism and advocacy, corporate greenwashing, portrayals in commercial media, political and policy pressures, full-scale public communication campaigns, academic and popular publications, new educational programs and centers, and online websites, videos, and resources.

Our panel at the 2011 ICA conference discussed several central aspects of communication and media in environmental research and practice: the role of media, the current state of environmental attitudes and knowledge, various forms of environmental communication, and the recent rise in academic interest in environmental communication and media.

SKEPTICAL AND UNINFORMED PUBLIC

There is substantial misinformation, skepticism, and denial of these central and earth-threatening environmental issues. For example, although the 2007 Intergovernmental Panel on Climate Change (IPCC) report states that "warming of the climate system is unequivocal" (p. 2), and climate change is a global, physical, epidemiological, social, economic, and even mental health threat (McMichael et al., 2003; Swim et al., 2008), only 56% of U.S. adults in 2007 believed that the phenomenon of global warming had been proven and could be largely attributed to human activities. Polls find that belief in human-caused climate change has decreased since its high in 2007 by 5% to 10%, and in May 2011, a mere 15% of Americans recognized the level of scientific agreement on the issue (Leiserowitz, Maibach, Roser-Renouf, & Smith, 2011).

The percentage of Americans who are extremely concerned about climate change has decreased in the last few years, whereas the percentage of Americans who are dismissive of climate change science has increased (Leiserowitz, Maibach, & Roser-Renouf, 2010; Saad, 2007). Conversely, Americans' support for clean energy and for the environmental movement in general is fairly strong (Jones, 2010; Leiserowitz et al., 2010; Pew Research Center, 2008). Environmental articles are a low proportion of all issues covered in newspapers and television (Artwick, 1998).

Many practical influences negatively affect media portrayals of climate change, such as reporter knowledge, misreporting or miscommunication, public misunderstanding, lack of scientific training, time and space constraints, commercial pressures on media to be more profitable, shrinking

news holes, tabloidization, editors hostile to environmental issues, and the complexity and subtlety of environmental issues. Further influences include event orientation; relative inaccessibility of technical sources; the "technophobia" of many reporters, editors, and audiences; atypical time and spatial scales of the issues; lack of consistent reporter assignments; terminology confusion; focus on controversy rather than underlying issues; dependence on official sources; social construction of scientific uncertainty; conventional news values such as "novelty, recency, and factuality"; communication trends; corporate media ownership pressures; and oversimplified and industry-oriented coverage (Antilla, 2005; Archibald, 1999; Boykoff & Rajan, 2007; Carvalho & Burgess, 2005; Freudenberg, Coleman, Gonzales, & Helgeland, 1996; Lockie, 2006; Sandman, 1994; Taylor & Nathan, 2002; Zehr, 2000).

Environmental Communication

Beyond popular media and news coverage, another form of environmental communication is environmental advocacy (Cox, 2006). This can involve (a) political and legal channels, including political advocacy, litigation, and electoral politics; (b) direct appeal to public audiences, including public education, direct action, media events, and community organizing; and (c) consumers and the market, including green consumerism and corporate accountability (Cox, 2006). Environmental advocacy campaigns are usually waged by noninstitutional sources (individuals, environmental organizations, and community action groups) and seek to change external conditions or governmental/institutional policy or practice (not individual attitudes or behaviors) (Cox, 2006). A major change in environmental advocacy campaigns occurred as a result of the first Earth Day in 1970: a shift from primarily educational to strategic campaigns to achieve specific goals, more participation by citizens, and systematic mobilization of members to create political pressure.

Yet advocacy generates dilemmas of persuasion for environmental activists to mobilize public support, such as whether extreme rhetoric and actions are useful because they can make mainstream groups appear more reasonable and thus acceptable or damaging because they give environmentalism a bad name. Further, many common rhetorical strategies of both popular and advocacy environmental communication are inadequate or misleading (Moser & Dilling, 2007). Environmental rhetoric and campaigns must also address the identification and reduction of barriers, especially to the communication itself (ranging from selective attention and reception, access and social constraints, social norms and values opposing

social change, emphasis on individual instead of system responsibility, etc.). Finally, any environmental rhetoric must be both part of, and also aimed at, larger social and institutional forces, such as businesses, municipal/regional/national policies, litigation, and religious attitudes.

The passage of the Community-Right-to-Know Act of 1986 ushered in what some U.S. cultural critics have called an era of "ecopopulism," as thousands of community environmental groups sprang up in largely lower income and minority neighborhoods throughout the United States (Adamson, Evans, & Stein, 2002; Gottlieb, 1993; Szasz, 1994). Kimberly Rivers Roberts' beautiful Hurricane Katrina video memoir that became the Oscar-nominated film *Trouble the Water* (2008) offers an example of a local effort to mediate environmental disaster that broke into the film festival circuit after being "discovered" and produced by documentary filmmakers.

The past few years have seen an explosion of publicity about the greening of American business. Companies from Apple to Wal-Mart, and from Ford to Shell, tout their eco-friendly practices in press releases, advertising campaigns, and product labels, encouraging customers to see themselves as aiding the planet through their purchases (Carlson, Grove, & Kangun, 1993; Hornby, 2007; Laufer, 2003). If it is true that "green is the new black" for corporate communications (Ambec & Lanoie, 2008; Struyk, 2007), then what factors have led the business community to sell themselves using the language of the scientific community and the environmental movement (Athanasiou, 1996)? What rhetorical and visual strategies have environmental scientists, activists, and regulatory agencies used to shape their own media messages—in both traditional and online forms—in response to the apparent embrace of green consciousness by businesses that had previously ignored or been actively hostile to their work (Cox, 2006; Moser & Dilling, 2007)?

More structured and research-based environmental campaigns grounded in social science principles and theories, and in environmental science concepts and evidence, are appearing. Further, more campaigns are using interactive digital media components or are provided entirely online (Rice & Atkin, 2009). For example, the website http://www.cbsm.com/ consists of six resources: an online guide that provides valuable information on designing and evaluating programs; a listserv and associated archive for sharing information and asking questions of others; and searchable databases of articles, downloadable reports, cases, and graphics on fostering sustainable behavior. Nonetheless, most environmental campaigns have had limited success in changing relevant behaviors (Farhar-Pilgrim & Shoemaker, 1981; O'Keefe & Shepard, 2002). Previous research has found little correlation between individuals' attitudes toward environmental issues and their actual behaviors (Hines, Hungerford, & Tomera, 1986/1987).

Rise in Academic Interest in Environmental Communication and Media

The pervasiveness and significance of environmental issues has motivated the growth of research on environmental communication and media (Friedman, 2004). For example, there are now specific academic journals in this area, such as:

Applied Environmental Education and Communication (http://www.tandf.co.uk/journals/titles/1533015x.asp)

Environmental Communication: A Journal of Nature and Culture (http://www.informaworld.com/renc)

Green Theory and Praxis: The Journal of Ecopedagogy (http://greentheoryandpraxis.org)

The Journal of Environmental Education (http://www.tandf.co.uk/journals/titles/00958964.asp)

International Journal of Environmental Research and Public Health (http://www.mdpi.com/journal/ijerph)

International Journal of Environmental Studies (http://www.tandf.co.uk/journals/titles/00207233.asp)

The International Journal of Sustainability Communication (www.ijsc-online.org/)

Public Understanding of Science (http://pus.sagepub.com/)

Science Communication (http://scx.sagepub.com/)

There is also a growing number of books and guides: Bortree (2011), Center for Research on Environmental Decisions (2009), Constable (2010), Corbett (2006), Cox (2006), Depoe, Delicath, and Aepli (2004), Dryzek (2005), Godemann and Michelsen (2011), Grist (2011), Hendry (2010), Jacobson (2009), Jacobson, McDuff, and Monroe (2006), James (2020), McKinsey and Company (2007), Meister and Japp (2002), Moser and Dilling (2007), Parker (2008), de Steiguer (2006), Szasz (1994), Tyson and Hurd (2009), and Ward (2008).

Finally, there are associations, links, and resources on many websites, such as:

The National Communication Association has an *Environmental Communication Division* (http://www.natcom.org/Default.aspx?id=357&libID=378).

In 2011, the International Communication Association created the *Environmental Communication Interest Group* (http://www.icahdq.org/sections/secdetinfo.asp?SecCode=DIV25).

The Environment, Science, and Risk Communication Group within the International Association for Media and Communication Research (http://iamcr.org/)

The Science and Environment Communication section of the European Communication Research and Education Association (www.ecrea.eu)

The Society for Environmental Journalists (http://www.sej.org/)

Of particular note is the formation in 2011 of the *International Environmental Communication Association* (http://environmentalcomm.org). This will include the Environmental Communication Network (a forum/listserv), *Environmental Communication: A Journal of Nature and Culture*, the *Conference on Communication and Environment*, and many other resources. www.esf.edu/ecn/programs.htm lists the increasing number of university graduate programs and research centers or labs in the United States and abroad that focus on environmental communication research.

The *Yale Forum on Climate Change and the Media* (http://www.yaleclimatemediaforum.org/)

Indeed, the terms "environmental communication" or "environmental media" only began appearing in social science journals in 1985 (using the CSA Illumina online reference database, which includes Comm Abstracts, Econlit, ERIC, International Bibliography of the Social Sciences, PAIS Archive, PAIS International, PsycArticles, C20PsychInfo, and Sociological Abstracts). In most years until 2005, there were typically one or two articles having these terms in their abstracts. Figure 11.1 shows this takeoff in 2005. In the science-oriented Environment Index database (Environment Index contains more than 1,957,000 records from more than 1,700 domestic and international titles going back to the 1940s, including 1,125 active core titles; formerly known as Environmental Issues & Policy Index and Environmental Knowledgebase), there are no abstracts with these terms during the entire period from 1985 to 2009.

Note: Environmental media can also refer to a specific kind of media effect; in environmental literature, a medium may not be a communication medium but a storage or transportation medium. So, without inspecting each article, these figures may even overstate the (low) coverage of environmental media and communication as we mean them.

THE ICA PANEL

This broad array of activities has produced some excellent scholarship and teaching, but it has had limited impact in academic and policy communities in the United States and other countries over the past several years. Perhaps because of the relative newness of the field or its loose and fragmentary organizational approach, environmental communication has often lacked visibility within the broader discipline of communication, as well as other academic and nonacademic communities.

Our panel brought together representatives of five centers and resources for environmental communication teaching, research, and practice. These resources integrate the use of interpersonal, mass, digital, and online communication; diverse methodologies; interdisciplinary researchers; various funding and administrative approaches; and concerns about different environmental issues. They are devoted to sharing expertise and encouraging collaboration about many of the above issues and others

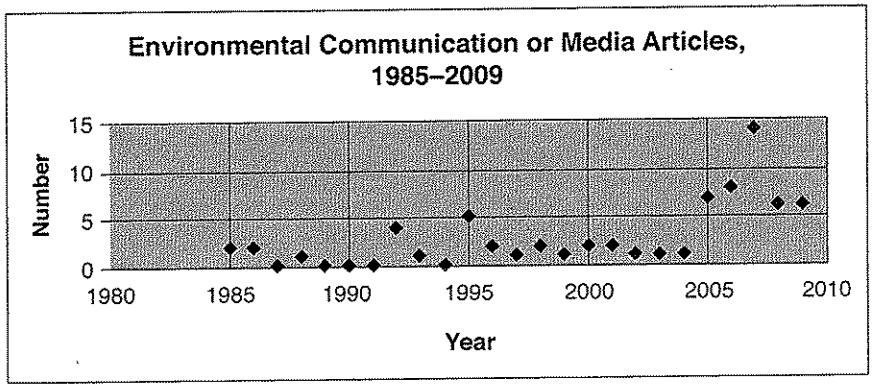

Figure 11.1. Social science articles with "environmental communication" or "environmental media" in their abstracts.

not covered here. The presenters provided insights into organizational, academic, and funding issues; the particular foci, goals, and mission of each center/resource; recent research; and opportunities for collaboration.

ENVIRONMENTAL COMMUNICATION NETWORK, SUNY-ESF, SYRACUSE, AND *ENVIRONMENTAL COMMUNICATION: A JOURNAL OF NATURE AND CULTURE*

Founded and managed by Mark Meisner, the Environmental Communication Network (ECN) has provided a decade of support to people working in the field of environmental communication (http://www.esf.edu/ecn/). ECN is also closely aligned with the biennial conference on Communication and Environment, which has been organized on an ad-hoc basis by different individuals and campuses for more than 20 years. The ECN site provides resources such as a listserv, blog, journals, bibliographies, programs, courses, websites, conference programs, and proceedings for the biennial Conference on Environmental Communication, and information about the Environmental Communication Division of the NCA and its conferences. The ECN operates as a voluntary service to the field. There is no formal membership structure. Anyone may join the listserv and use the website's resources. Mark Meisner manages the ECN, but the availability of resources is also a function of the participation of many others in the network. The website gets more than 100,000 visits a year and appears at the top of Google's search rankings for "environmental communication." As noted, all this will be integrated into the new International Environmental Communication Association (http://environmentalcomm.org).

SUNY's College of Environmental Science and Forestry (www.esf.edu) has been at the forefront of the emergence of the field of environmental communication since the late 1990s. It currently offers undergraduate and graduate programs (research and professional master's degrees and the PhD) in environmental communication and hosts the Environmental Communication Network. The mission of the SUNY-ESF is to advance knowledge and skills and to promote the leadership necessary for the stewardship of both the natural and designed environments. The programs—including science, design, engineering, policy, and management—serve to make ESF the first "college of the environment" in the United States with an international reputation for excellence in instruction, landmark research, and dedication to serving others. The college's graduates are citizens who anticipate the environmental consequences of human activities, articulate those consequences to society, and promote behaviors and actions that result in sustainable environmental systems from the local to the planetary levels.

A related resource is *Environmental Communication: A Journal of Nature and Culture* (www.informaworld.com/renc), edited by Stephen Depoe. The journal publishes high-quality, peer-reviewed scholarship that examines theories, practices, and processes of communication as they relate to the environment around the world. The journal serves as a nexus, a place of global connection and conversation, among scholars working in and across a variety of disciplines who explore how humans communicate about and within both natural and cultural environments. The journal also seeks to promote interaction between academic scholars and those who practice environmental communication, including community members, industry professionals, government officials, and others, through a number of special features, including a regularly published section devoted to practice. The "PRAXIS" section is devoted to exploring a variety of practices in the field (such as public participation, advocacy and education, documentary and film). Related publications include Meisner (2000, 2001, 2005, 2010).

THE CENTER FOR ENVIRONMENTAL MEDIA PRODUCTION AND RESEARCH AT FLORIDA STATE UNIVERSITY

The Center for Environmental Media Production and Research (CEMPR, http://mailer.fsu.edu/~aopel/cempr) designs, creates, and evaluates media products intended to influence a broad range of environmental attitudes and behaviors, including promoting energy efficiency and sustainability at residential and commercial levels. CEMPR integrates traditional print media, broadcast video, web-based social networking, and three-dimensional video production with rigorous audience response evaluation resulting in data-driven communication campaigns.

Based on Florida State's College of Communication and Information and drawing on the strengths of an interdisciplinary team of social scientists and media/entertainment producers in film, theatre, and communication, led by Andy Opel and Laura Arpan, CEMPR combines the full high-definition video production facilities of a small movie studio with the research abilities of a major university. Bringing together creative teams with empirical scientists allows CEMPR to create media products that are targeted to specific niche demographics while collecting data to determine effective "best practices" that can inform future outreach efforts. The results are cost-effective, research-based environmental media products with demonstrable impacts.

CEMPR is uniquely positioned to narrowly tailor specific media messages to particular demographic audiences. Using audience evaluation tools, media products can be continually refined to achieve the desired

impact with the target audience. This combination of professional creative teams working with social scientists allows CEMPR to effectively impact audience members' environmental attitudes and behaviors. Related publications include Arpan, Lu, Opel, and Steinberg (2010), Lu, Arpan, Leiserowitz, Maibach, Opel, and Steinberg (2011), and Toole (2010).

CARSEY-WOLF CENTER'S ENVIRONMENTAL MEDIA INITIATIVE, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

The Carsey-Wolf Center's Environmental Media Initiative (EMI) (http://www.carseywolf.ucsb.edu/emi) was inspired by the opportunity to join UC Santa Barbara's exceptional strengths in media/communication studies and environmental science to create an interdisciplinary program unique to the University of California and the nation. The EMI brings together environmental scientists with film and media scholars—drawn from the humanities, arts, and social sciences—to collaborate on teaching, research, and public programming. The EMI explores all of the ways media and the environment influence, structure, and inhabit each other: the environment in media, media in the environment. Projects, education, and teaching include:

The 2007 *Environment and Media Conference* (http://www.carseywolf.ucsb.edu/emi/events/media-and-environment-0)

Ongoing presentations, seminars, and films about media, communication, and the environment.

Blue Horizons is a 9-week, four-course summer program that brings together students interested in digital media production and environmental studies to learn about important issues of the global ocean from a local, California perspective. Blue Horizons is designed to help students develop an understanding of the role of media in communicating environmental issues and produce a short environmental documentary using that understanding. The course involves readings, major environmental issues, environmental media history and ideologies, environmental representation in the media, films, environmental PSAs, treatment "pitches," ocean science, storytelling and drama, journalism and bias, audiences, documentary production, and creating and editing a short ocean environmental film.

Green Screen is a one- or two-term course environmental media production program that brings together students in the arts, humanities, social sciences, and sciences to engage environmental issues in Santa Barbara through artistic production. The goal of the program is not only to increase awareness about the environment, but to expand the ways that these issues are represented and communicated.

DigitalOcean is a large-scale software, social media, and ocean science project—a virtual commons—that connects people and provides them with resources to advance ocean sustainability and protect the earth's ocean ecosystems. DigitalOcean's MPA Network will provide opportunities for multimedia collaborations among ocean scientists, ocean enthusiasts, and ocean managers to aggregate media and data for marine-protected areas across the planet and to share them with the general public through Google Ocean.

Sampling the Sea engages middle and high school students in classrooms around the world in monitoring, analyzing, and sharing information about the declining global fish population that, in its implications for humans and the ecosystem, dwarfs other food issues in our time. Sampling the Sea uses multidisciplinary teams of students, scientists, and new media experts using ePals' K-12 international secure network with social media to engage the next generation of consumers in a global dialogue on the interrelationships among local human customs, regulatory laws, fishing practices, wildlife management, and the future of the sea. The 2009–2010 pilot was funded by a $211,000 MacArthur Foundation Digital Media & Learning grant.

Graduate Communication Seminar in Public Communication Campaigns, emphasizing environmental campaigns.

Related publications include Bates (2010), O'Donnell and Rice (2008), Rice and Robinson (2012), Rice, Robinson, and Caron (2011), and Robinson (2010).

CENTER FOR CLIMATE CHANGE COMMUNICATION, GEORGE MASON UNIVERSITY

Although the scientific evidence of climate change has never been clearer, less is understood about how to foster widespread policy and behavior change to reduce and adapt to the threat. Using communication to promote civic engagement and behavior change requires deep insight into audiences, their motivations, the barriers they face, and the best methods of reaching them with information they value. The Center for Climate Change Communication (http://www.climatechangecommunication.org) is dedicated to exploring these issues, conducting research to improve climate

change public engagement programs, and helping translate research into practice by assisting organizations that are engaged in climate change communication. Funded by the National Science Foundation, NASA, the Grantham Foundation for the Protection of the Environment, and The Robert Wood Johnson Foundation, the Center's current research investigates four broad questions:

- What are members of various audiences currently thinking, doing, and communicating about climate change?
- What information about climate change is most worth knowing?
- What are the most effective ways of reaching various audiences with information of value to them?
- What is currently being conveyed in the media, and what is its impact?

In pursuing these questions, the Center has conducted a series of national surveys in conjunction with the Yale Project on Climate Change Communication. These surveys serve multiple purposes:

1. *Tracking public opinion*: Since 2008, the two centers have issued more than 20 reports tracking climate-relevant knowledge, beliefs, behaviors, and policy preferences. The results have been reported in a number of national and international news outlets, including the *New York Times*, *Washington Post*, and Reuters. Briefings on the results have also been presented to policymakers, including the White House Office of Science & Technology Policy, U.S. Global Change Research Program, National Academy of Sciences, and COP 16 Cancun Climate Summit.
2. *Providing insight into audiences to organizations engaged in climate change communication*: The Center is assisting the following organizations in applying the audience research: government agencies, including NOAA, NASA, and CDC; nongovernmental organizations (NGOs), including the National Wildlife Federation, the Union of Concerned Scientists, and NRDC; and dozens of science centers and museums across the country.

3. *Advancing the literature on environmental communication*: Representative recent and pending publications include: an analysis of the impact of cable news coverage by Fox News, CNN, and MSNBC on the climate-change attitudes of Republicans and Democrats (Feldman et al., in press); an examination of the differing impacts of political, science, and environmental news reporting on climate-change attitudes (Zhao, Leiserowitz, Maibach, & Roser-Renouf, 2011); an analysis of the role of Climategate in the decline of concern about climate change in the United States over the past 3 years (Leiserowitz, Maibach, Roser-Renouf, Smith, & Dawson, in press); and an audience segmentation analysis of the U.S. public that identifies six distinct audience groups based on their beliefs, issue involvement, policy preferences, and climate-relevant behaviors (Maibach, Leiserowitz, Roser-Renouf, & Mertz, 2011).

HARMONY INSTITUTE AND COLUMBIA UNIVERSITY'S CENTER FOR RESEARCH ON ENVIRONMENTAL DECISIONS

The Harmony Institute (http://www.harmony-institute.org/) is a new nonprofit research center that measures the impact and influence of entertainment on social and environmental issues. In addition, the Harmony Institute integrates cutting-edge scientific research with film, television, and new media experiences to help its clients deliver narratives that modify behavior and influence change. The Institute employs a unique methodology in researching and testing the impact of behavioral science on consumers of mass media storytelling. Coupled with an industry-focused understanding of media production, this innovative approach toward media making is used to generate entertainment with targeted social and environmental messages.

The Center for Research on Environmental Decisions at Columbia University (http://cred.columbia.edu/) conducts research regarding individual and group decision-making processes and outcomes when faced with climate uncertainty and environmental risk while working to improve the quality and effectiveness of environmental and scientific communication. Research areas include learning and information processing, social goals, participatory processes, economic institutions, framing, perceptions of climate, water management, agriculture, and health.

Selected center publications include Center for Research on Environmental Decisions (2009), Leiserowitz (2006), and Leiserowitz, Shome, Marx, Hammer, and Broad (2008).

CONCLUSION

This ICA panel session was timely and a potentially significant opportunity for collaboration among communication and environmental researchers and policymakers, as well as a reflection of ICA's recent commitment to environmental communication and even greening the conference. Further, it resonated with the Conference Theme—Communication @ the Center—by providing new and ongoing efforts to emphasize the role of media and communication in the realm of environmental issues and describing the work of several important centers in this area.

These topics should be of interest to a wide range of communication research areas, such as:

- implications of traditional media as well as new online resources and interactive media as part of environmental campaigns
- the global nature of environmental issues and the need for social, technical, economic, cultural, and policy change in environmental practices
- in particular, social justice approaches concerned with the vastly disproportionate experience of negative environment consequences by the poor, disadvantaged, minority, and less developed countries
- environmental implications for health
- the role of media in covering science news and policy issues
- the challenging organizational aspects of managing centers, institutions, and campaigns
- the visual, textual, and symbolic portrayal of and discourse about nature in media
- issues of advocacy, greenwashing, and social marketing

Communication researchers should also take up the challenge of finding ways to integrate environmental communication issues in their courses through these and other topics.

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