# The Routledge Handbook of Environment and Communication

## Second Edition

Edited by Anders Hansen and Robert Cox

# THE ROUTLEDGE HANDBOOK OF ENVIRONMENT AND COMMUNICATION

This revised and fully updated second edition of the *Routledge Handbook of Environment and Communication* provides a state-of-the-art overview of environmental communication theory, practice, and research.

The momentous changes witnessed in the politics of the environment as well as in the nature of media and public communication in recent years have made the study and understanding of environmental communication ever more pertinent. This is reflected in this second edition, including a number of exciting new chapters concerned with: environmental communication in an age of misinformation and fake news; environmental communication, community and social transformation; environmental justice; and advances in methods for the analysis of mediated environmental communication. Signaling the key dimensions of public mediated communication, the Handbook is organized around five thematic parts:

- the history and development of the field of environmental communication research,
- the sources, communicators, and media professionals involved in producing environmental communication,
- research on news, entertainment media, and wider cultural representations of the environment,
- the social and political implications of environmental communication,
- and the likely future trajectories for the field.

Written by leading scholars in the field, this authoritative text is a must for scholars and students of environmental communication across multiple subject areas, including environmental studies, media and communication studies, cultural studies, and related disciplines.

**Anders Hansen** is an Associate Professor in the School of Media, Communication and Sociology, University of Leicester, UK.

**Robert Cox** (PhD University of Pittsburgh) is Professor Emeritus in the Department of Communication and the Curriculum in the Environment at the University of North Carolina at Chapel Hill.

"Hansen and Cox's updated Handbook powerfully illustrates the importance of environmental communication scholarship and practice in contributing to societal change. Reflecting upon the field's achievements thus far, the editors and multiple authors of this collection also help (re)orient its future directions, making issues of justice a critical and necessary focus of its work."

**Julie Doyle**, *Professor of Media and Communication,*
*University of Brighton, UK.*

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# ACKNOWLEDGEMENTS

# INTRODUCTION TO THE SECOND EDITION OF THE HANDBOOK OF ENVIRONMENT AND COMMUNICATION

*Anders Hansen and Robert Cox*

A key rationale for the first volume of the *Routledge Handbook of Environment and Communication*, published in 2015, was the rapid expansion, diversification, and consolidation of environmental communication research witnessed during the first decade of the 21st century. This rationale continues to hold and has if anything been strengthened by the continued growth and enhanced centrality of the field to addressing the climate crisis and the environmental challenges facing the planet. The momentous changes witnessed in the politics of the environment as well as in the nature of media and public communication in recent years have made the study and understanding of environmental communication ever more pertinent. On the political stage, the acceleration of populism, climate change denialism, international trade wars, the emergence of youth-led climate emergency activism, etc. have developed in parallel with, and often facilitated and aided by fundamental changes to the media and communications environment, including its regulation, manipulation, and exploitation – with significant implications for (information and misinformation in) the public communication of environmental science and politics. The emergence of the coronavirus Covid-19 pandemic in late 2019 likewise has brought into sharp relief the centrality of (mediated) communication, as well as many of the core issues and debates surrounding science, risk, and public understanding familiar to environmental communication research.

This comprehensively revised 2nd edition of the Handbook builds on the first edition's state-of-the-art reviews to reflect the continuing fast-moving changes in the politics of the environment, in the media and communications landscape, and the continuing expansion of environmental communication research. A number of exciting new chapters are included to reflect advances in four particular areas: environmental communication in an age of misinformation and fake news; environmental communication, community and social transformation; environmental justice; and advances in methods for the analysis of mediated environmental communication.

The Handbook brings together international scholars and multidisciplinary perspectives to offer state-of-the-art reviews charting the history and development of environmental communication scholarship, and examining core concepts, theories, and research in the study of environment and communication. It is our belief that such examination can help, not only to understand the centrality of communication processes and communications media in the public sphere, but political definition, elaboration, and contestation of environmental issues

and problems. Starting with overviews that chart the emergence and development of the field of environmental communication research, we proceed with research examining the three major domains of the communication process: the sources and production of communication about the environment; the study of media and cultural representations of the environment; and the study of how communication about the environment impacts on and interacts with public and political beliefs, as well as political action regarding the environment. In the concluding part, future trajectories for the field of environmental communication research are proposed, mapped out, and discussed. In the following, we provide an overview of what is covered under each of the five parts of the Handbook.

## Part 1:  Environment, communication, and environmental communication: emergence and development of a field

The chapters in the first part chart the emergence, development, and consolidation of environmental communication scholarship from the mid-20th Century to the present, mapping the theoretical, paradigmatic, and disciplinary influences on the field. Reflecting two particular growth areas with increasing pertinence for environmental communication research, the second edition adds two new chapters on environmental justice and social change communication respectively to this section.

In Chapter 1, Robert Cox and Stephen Depoe set the scene by tracing the emergence and growth of the trans-disciplinary field of environmental communication. They examine the field's institutional bases and delineate some of its key assumptions and research questions. The chapter then describes five emerging challenges in the field – the internationalisation of research and North-South imbalances; decolonizing environmental communication; media ecology, complexity, outcomes; food systems, race, and culture; and critical, engaged, and change-oriented scholarship – as illustrative of the expanded range and conversations within the field.

Evident throughout the chapters of the handbook is that the broad field of research, which we can now label as 'environmental communication' research, owes much of its innovativeness, dynamic development, and diversity to the fact that it draws from a wide range of theoretical and disciplinary traditions.

In Chapter 2, James Cantrill thus charts the contribution to environmental communication from six central disciplines in the social sciences: economics, history, human geography, political science, sociology, and psychology. Providing a synopsis of the development of an environmental focus in each of the disciplines and their particular conceptual and methodological approaches, he offers illustrative examples – and a critique – of how research in these core social science disciplines can inform our current understanding of the relationship between media, communication, and the environment at large. He concludes with a review of how scholars and practitioners are attempting promising integrative approaches.

A common feature across much analysis of media, communication, and the environment is the close attention often paid to language, rhetoric, 'claims-making', and discourse in public communication about the environment. There is thus a clear recognition that lexical choice, narrative, and discursive practices are central components of how issues are rhetorically constructed and how in turn particular messages/meanings are conveyed and boundaries set for public understanding and public interpretation/opinion regarding environmental issues. Jennifer Peeples and Mollie Murphy (Chapter 3) trace the influence of rhetorical and discourse analytical approaches in environmental communication research, and they show how the insights afforded by these approaches have proved particularly productive in

uncovering how communication socially constructs partial and politically interested understandings of environmental issues.

Connecting with key concerns often articulated in environmental communication research about the social, political, and cultural inequities characteristic of environmental problems and conflicts, this edition of the Handbook adds a new chapter on environmental justice. The environmental justice perspective brings the unequal distribution of environmental degradation to the fore, and should, as Taylor Johnson, Kensey Dressler, Nicolas Hernandez, and Danielle Endres argue in Chapter 4, be regarded as a central pillar of environmental communication research. Acknowledging that environmental injustices can take many forms linked to systems of power and oppression, they review the multiple strands of environmental justice perspectives within environmental communication research and proceed to set out a series of future directions, concluding that bringing environmental justice to the centre of environmental communication research will require changes in environmental research as well as practice.

Struck by the many parallels in the trajectories of environmental communication research and the field traditionally referred to as 'development communication', including shared concerns about social justice, inequality, sustainability, and the centrality of communication, we are pleased to welcome another exciting new addition for this second edition in the form of Patrick Murphy's examination of 'the place of the environment in the field of communication for development and social change' (Chapter 5). Delineating the historical roots, development, and transformations of the field now known as communication for development and social change (CDSC), Patrick Murphy draws out the key parallels and overlaps with the concerns of environmental communication research. He locates 'the place of the environment within CDSC's complex historical terrain' and shows how it has moved from an unarticulated discursive presence in early ideas about development anchored in growth, to a more deliberate and sustainable point of focus within recent CDSC scholarship and practice. As with other chapters in this section, the benefits and potential gains for environmental communication research of drawing from a broad, transdisciplinary pool of research are evident, including in terms of the close interplay of research, theory, and practice.

A sign of the increasing maturity of 'environmental communication' then is the increasing diversification and broadening of scope, both in terms of theoretical and disciplinary traditions, and significantly in terms of the types of media, communications genres and communications processes studied. This widening of scope is reflected throughout the Handbook in the range of media, genres, cultural representations, and communication forms that are considered.

## Part II: Producing environmental communication: sources, communicators, media, and media professionals

Research on the 'production of environmental communication' focuses traditionally on the sources, who make claims in the public sphere and/or try to influence what is publicly communicated, and the media and media professionals, whose task it is to report on or cover the environment and 'environmental issues'. Much of the research on the relationship between sources and journalists have focused on specialist reporters and on three types of sources: scientists/experts, environmental pressure groups, and government/big business. As the media and communications landscape has changed enormously in the last few decades – whether looked at in terms of technology, communication flows, organisational arrangements, or ownership and control – so too have the nature of communication, professional roles, and

types of actors involved in public communication and discourse about the environment. The chapters in this section chart these changes and show how research focused on the key actors/voices involved in communicating about the environment can help in understanding the dynamics and politics of how public discourse on the environment is shaped and contested.

The first five chapters in this section focus predominantly on key types of actors among the variety of primary sources involved in communicating about the environment. The second group of chapters focuses primarily on the changing nature of news organisations and implications for environmental journalism and journalists.

In Chapter 6, Sharon Dunwoody – who sadly passed in early 2022 and will be greatly missed – explores the historical evolution of environmental scientists as sources for journalists as well as 'popularisers' themselves. Charting the historically changing emphases on public communication of science, and noting the greatly expanded opportunities for interactive public communication, she argues that 'many scientists continue to hew to a model of science communication that emphasizes educating the public rather than engaging them'.

From scientists in Chapter 6, the focus turns in Chapter 7 to Robert Cox and Steve Schwarze's discussion of environmental and climate activists and ENGOs' communication strategies and uses of media to generate publicity and effect environmental change. Cox and Schwarze examine these groups' increasingly sophisticated strategic use of both mainstream and digital social media, media-audience relations, and communication strategies finely tuned to the dynamics of the public communications landscape. They conclude by identifying the challenges for ongoing research about ENGOs' strategic decisions and uses of different media in a complex and evolving media environment.

In Chapter 8, William Dinan and David Miller examine the role of elite policy-planning groups, think tanks, and other lobbying organisations in public campaigning and delaying of action on climate change. Examining the organisations and networks that promote climate denial ideas, they confirm the centrality of communication in the exercise and maintenance of power relations. Their analysis uncovers the processes by which key agents such as think tanks and lobbying coalitions mediate between social and economic interests, developing and promoting ideas that are picked up by policy makers and translated into policy outcomes.

Libby Lester and Simon Cottle (Chapter 9) move the examination of key sources and claims-makers in environmental protest and debate beyond the specific types/groups of sources/actors to focus more broadly on the changing opportunities and strategies which are emerging in the global digital communications landscape. Drawing on research into decades-long protest over native forest logging, they explore the new configurations and practices playing out within and across transnational networks, media platforms, and publics, offering insights into our understanding of the central role of communication in public protest generally, and – more specifically – the relationship between protest, publics, and changing media logics and practices.

Chapter 10 offers a unique combination of theory-based scholarly insight and experience of campaigning and public/stakeholder engagement on environmental issues. Drawing on three decades of field experience with the 'collaborative learning' approach, Gregg Walker, Steven Daniels and Jens Emborg outline key lessons from field projects featuring stakeholder, community, and government agency engagement and collaboration in environmental and natural resource management situations. Building on the insights presented in the first edition of the Handbook, they add four new insights and conclude by looking ahead in two significant areas, climate change, and locally-led adaptation, and – in light of the Covid 19 Pandemic – the importance of virtual public engagement.

Moving the emphasis from the sources discussed in the first five chapters of this section to the media and media professionals involved in representing/mediating environmental claims, Chapter 11 charts the changes in environmental journalism and the roles of environmental journalists in the US in recent decades. Drawing on their extensive surveys of American environmental journalism, David Sachsman and JoAnn Valenti chart the rise and decline of environmental journalism in the newspaper and television industries. Noting that by the end of the first decade of the present century, 'many experienced environment reporters had lost their jobs, and the future of environmental reporting was in question', they also point to the innovative ways in which environmental journalism and journalists have adapted to the online digital news landscape, to the extent that environmental journalism may yet witness another golden age.

Alison Anderson (Chapter 12) connects the trends observed in the previous chapter to the significant body of literature that has emerged from the sociology of news production generally and the production of environmental news particularly. She shows how, in the digital age of 'fake news' and misinformation, 'the relationship between news sources and journalists covering the environment has become far more complex with a greater diversity of voices and strategic PR communication', and a shift of power towards sources. Her chapter confirms 'how attention to uncovering behind-the-scenes attempts by news sources to influence media reporting and public perception of environmental issues is critical for understanding the broader politics of environmental news'.

The changing nature of environmental journalism signalled by the previous chapters is elaborated further in Stuart Allan's exploration in Chapter 13 of synergies between citizen scientists and citizen journalists in the news reporting of environmental issues. Starting with an examination of evolving definitions of citizen science, and drawing from recent public environmental controversies, he shows how citizen scientists and citizen journalists working together can focus public attention and protest, and play a key role in public engagement.

In an exciting new addition to the Handbook, Michael Brüggemann, Jannis Frech and Torsten Schäfer (Chapter 14) explore the new and emerging role conceptions and practices of environmental journalism and propose the label 'transformative journalisms'. They argue that these are new forms of advocacy journalism converging around a commitment to 'contribute to the social–ecological transformation of societies by doing journalism', that often challenges traditional journalistic values of objectivity and neutrality, while emphasising relevance, transparency, and factual correctness. They see the tensions arising from these shifts in journalistic practices and values as a productive source of creativity, complementing traditional journalism with new forms of content, production, and interactions with audiences as well as increased awareness of the ecological footprint of doing journalism.

## Part III:  Covering the environment: news media, entertainment media, and cultural representations of the environment

Of the three major domains of the communication process – production, content, and audiences – it is the media representations (content) of the environment and environmental issues that have attracted the bulk of communication research interest. Traditionally, the main focus of environmental communication research interest has been on news media reporting of environmental problems, disasters, crises, and policies. Recognising, however, that the symbolic environment through which images, ideas, and messages are communicated and circulated in society goes far beyond the news media, the chapters in this section

broaden the scope to examine research on a much more diverse range of entertainment genres/media and cultural representations of the environment.

The digitisation of media and communication in recent decades has not only greatly influenced the practices of journalists and others involved in communicating about the environment, but has also had profound implications for how communication researchers can and do investigate public-mediated communication about the environment. Very particularly the scope for examining longer-term changes and trends in how environmental issues wax and wane in public communication has vastly increased – and through that the scope for examining the central roles that communication plays in the rise and fall of public and policy agendas with implications for the environment.

In an exciting new addition to the Handbook, Valerie Hase and Mike Schäfer (Chapter 15), map out the emerging research landscape of big data and computational methods for analysing mediated environmental communication. Surveying the rise of Computational Social Science (CSS) focused on big data and computational methods, they summarise the characteristics, opportunities and limitations associated with methodological advances in the analysis of communication about the environment. They show the twin components of accessing/collecting data and the use of automated content analysis or network analysis to measure key variables, such as actors, positioning or framing. Highlighting the exciting research opportunities associated with the rise of CCS – including in terms of accessing vast amounts of data and mapping changes across time and space – they also draw out some of the key limitations of these approaches, ending with a specific recommendation to steer clear of 'black box' commercial software tools, that lack transparency about their assumptions and algorithms.

In Chapter 16, Michael Goodman, Marisa McNatt, and Max Boykoff, survey how legacy and social media representational practices shape the cultural politics of knowledge, information, and news coverage on climate change around the world. Arguing that mass media stitch together formal science and policy with everyday activities in the public sphere, they show how – since 2015 and the publication of the first edition of this Handbook – coverage of climate change around the world has changed substantially both in terms of frequency and content. They assess these changes focusing on the shifting production of climate change news across both newspaper coverage and social media to assess how these processes broadly influence awareness and engagement. Working with longitudinal data, they explore how legacy and social media representations of climate change construct knowledge, norms, and conventions about climate change through coverage of, for example, the Trump presidency, extreme weather events, climate change as an 'intersectional' story and the 'Greta Thunberg Effect' in the rise of #climatenews in digital spaces. They consider how complex interactions between science, media, policy, digital technology, and the public have contributed to perceptions, misleading debates, priorities, and understandings concerning climate change that, in turn, guide efforts seeking to enlarge rather than constrict the spectrum of possibility for responses to climate challenges.

In Chapter 17, Libby Lester explores environmental communication as it occurs within the shifting conditions of mediatisation and of global trade and politics. Drawing on analyses of mediatised environmental conflict from the Australia-Asian region, she demonstrates the key roles of media and communication in the formation of communities around environments threatened by human activity and the transnational movement of resources, goods, people, and ideas. The chapter concludes by asking how mediatised environmental conflict might become a more effective catalyst for supporting sustained positive change for environments, places, and people.

Concepts of objectivity, accuracy, trust, and balance have long been prominent in journalism and communication research generally, and indeed in science and environmental communication more specifically. The transition from analog to digital communications, and the associated vast changes to public communication and the public sphere, have witnessed a resurgence of many of the traditional concerns of journalism and news analysis and likewise seen the emergence of a new public vocabulary reflecting these concerns, including terms such as fake news, misinformation, disinformation, post-truth and incivility in public communication. This second edition of the Handbook has been strengthened with two new chapters focused specifically on these developments.

In Chapter 18, Christopher Wirz and Dominique Brossard introduce the complexities of defining 'misinformation' and how it relates to similar concepts such as fake news, disinformation, and bad science reporting. They discuss this in the context of changes to environmental communication in recent times, noting how tackling the 'misinformation problem' will require rather more than training audiences and fact-checkers. They conclude with a discussion of important considerations for addressing issues associated with misinformation.

Starting with a comprehensive review of scholarship on how and why climate misinformation and disinformation spreads online, William Dinan, Chiara L Bernardi, Victoria Esteves, and Steven Harkins, in Chapter 19, offer an analysis of trends and advances in research on climate denialism. They show that decreased opportunities for climate sceptics in popular press and broadcast outlets have resulted in their gravitation to digital media and online platforms and spaces with limited editorial standards and controls. Examining research on the communication strategies of climate denialist networks and on the evolution of audience practices and dynamics in relation to climate denial on social media platforms, they offer insights into the misinformation/disinformation practices that define the online climate denial universe. Synthesising research from across a range of disciplines the chapter offers a state-of-the-art review of research on the role and dynamics of climate denialism in public environmental communication.

The next five chapters focus on non-news media and cultural representations of the environment. James Shanahan, Katherine McComas, and Mary Beth Deline (Chapter 20) survey the comprehensive body of research built up over several decades on television representations of the environment and their role in relation to public environmental concern. Reviewing the considerable body of evidence from cultivation research, as well as from agenda setting and related studies, they show the complexities of the relationship between media representation and public concern, and ask whether the growth in environmental concern witnessed in the recent decade or so is in spite of or because media attention.

In Chapter 21, Anne Marie Todd surveys environmental communication scholarship on cartoons and animation. She discusses how, with the proliferation of digital media, animation has gained prominence as a distinct visual discourse that can illuminate complex environmental issues. Cartoons engage audiences, she argues, through character-driven narratives, comic corrective and crisis response, with implications for environmental action, attitudes, and behaviour.

In the following Chapter 22, Pat Brereton surveys the trajectories of scholarly analysis of the representation of environment and ecology in film, ecocinema. Drawing on studies of *An Inconvenient Truth* and popular fiction films like *The Day after Tomorrow, Avatar,* and *Wall-E* among others, he seeks to tease out why these films have become some of the most successful and influential eco-narratives ever produced. Discussing a range of film-critical arguments, positions and categorisations, Brereton concludes that all types of film, from a commercial Hollywood blockbuster through to ecological art-house film, have significant

potential for foregrounding ecological issues and helping situate these concerns within the general public consciousness.

In Chapter 23, the focus turns to the representation and uses of nature and environment in advertising. Drawing together a range of work on how appeals to nature and the natural are used ideologically in advertising and other media, Anders Hansen shows how advertising articulates and reworks deep-seated cultural categories and understandings of nature, the natural, and the environment. The chapter examines how constructions of the natural and nature are deployed in advertising and other mediated communication to appropriate the homogenising trends of globalisation and to enlist national/local/cultural distinctiveness and symbolism in the service of product promotion and consumption, in ways which ultimately tap into and reinforce particular political/ideological views.

In the final chapter (Chapter 24) of this section, Andy Opel shows how environmental language and images are deeply embedded in, what he refers to, as 'the backdrop of our consumer culture' and the 'wallpaper of contemporary life in the industrialized north', ex-emplified through such media and genres as greeting cards, board games, computer screens, and theme parks. Drawing together research and analysis of these genres with an assessment of emerging forms of virtual nature, the chapter shows the enduring power of environmental imagery.

## Part IV: Social and political implications of environmental communication

Environmental communication research is concerned, ultimately, with mapping and understanding how media and communication processes impact on and shape public understanding/opinion and political decision-making in society. Like research on the production and content of mediated public communication about the environment, studies of the wider social implications of such representations have been characterised by increasing appreciation of the highly dynamic and complex ways in which environmental messages, images, and beliefs are promoted, contested, and circulated in society. The rapidly changing nature of the media and communications landscape, combined with increasingly differentiated models of how we as individuals interact with the media and communications environments, have helped move the emphasis in the study of 'publics' for environmental communication away from notions of a largely passive mass audience towards notions of a more active and highly differentiated audience (see particularly Priest, Chapter 25, Whitmarsh and Mitev, Chapter 26, and Roser-Renouf et al. Chapter 27).

Much of what we now know about social and political implications of mediated environmental communication has drawn on prominent media and communication research models such as cultural indicators/cultivation analysis (see Shanahan et al. in Chapter 20), agenda-setting research, and framing research, while research from the disciplines of psychology and social psychology has drawn on, for example, the social-amplification-of-risk model to provide increasingly differentiated insights into how different publics interpret environmental issues (see Whitmarsh and Mitev, Chapter 26, and Roser-Renouf et al, Chapter 27).

Susanna Priest (Chapter 25) charts the changes in approaches to the study of how publics acquire, interact with and interpret science, environment, and risk information and communication. Noting the rise of the Internet-dominated world, and the ability of individuals to readily seek out information compatible with their existing views, she argues that public views are shaped more by ideology and trust than by the nature and quality of the underlying

science. Moving beyond the traditional focus on public understanding of science, she introduces the idea of 'critical science literacy' to capture the knowledge and skills audiences need to be intelligent environmental news consumers.

In Chapter 26, Lorraine Whitmarsh and Kaloyan Mitev review research across various countries on public perceptions of climate change. Examining research from several domains of the social sciences, but with an emphasis on psychological approaches, they find evidence of growing awareness of climate change and areas of (mis)understanding about its causes, effects, and possible solutions. They examine fluctuations in concern and the influence of ideology on the formation of attitudes. They conclude with evidence from audience research of effective ways of communicating climate change, discussing aspects such as persuasive language, the use of visuals, emotional content, the effects of levels of trust, and the role of online social networks.

The theme of message strategies for engaging diverse audiences is also at the core of Chapter 27, where Connie Roser-Renouf, Justin Rolfe-Redding, Neil Stenhouse, Anthony Leiserowitz, and Edward Maibach draw on their extensive and long-running programme of research identifying six unique audience segments that view and respond to global climate change in distinct ways. Describing the beliefs and characteristics of each group, they discuss methods of effectively communicating with them in light of key variations such as the nature of messaging for each group, their willingness to process information, their propensity for counter-arguing, and their communication content preferences. They conclude that understanding the sources and cultural/political underpinnings of people's views is key to effective communication aimed at engaging with and changing public understanding and action with regard to climate change.

The common thread increasingly visible, as seen in the previous chapters in this section, is the emphasis placed on the importance of engaging publics and stakeholders in negotiating, transforming, and transcending conflicts over environmental policy and action. In a splendid new addition to this second edition of the Handbook, Tarla Rai Peterson, Andrea Marie Feldpausch-Parker, and Nícia Givá, in Chapter 28, develop this thread with a comprehensive review and discussion of communication as the crux of a suite of practices that enables citizens to transform their communities toward greater sustainability. Emphasising the local and the regional, they describe community transformation as a discursively constituted political process, where communication both constitutes transformative possibilities and brings those possibilities to fruition. Starting with a review of theories of community transformation, they proceed to review contributions from environmental communication scholars of community transformation, and then offer an illustrative case focused on conflicts between environmental preservation and human livelihoods in Mozambique. They conclude by outlining opportunities and challenges for future communicative efforts to democratically transform communities in sustainable ways.

In a further splendid new addition to this second edition of the Handbook, James Cantrill and Rebecca Budesky explore, in Chapter 29, the central constitutive role of communication in the close relationship between 'place', identity, and environment. They survey scholarship on the role of media and interpersonal networks in mediating reactions to environmental disasters, and the dynamic nature of place-based discourse following cataclysmic environmental losses. They draw on the concept of solastalgia to illuminate displaced environmental refugees' responses to forced migration, especially in relation to climate change effects in the South Pacific. Echoing interest in differentiated 'publics', they conclude by encouraging environmental communication scholars to consider ways the discourse of climate refugees and their senses of placelessness can threaten social identity and health.

## Part V: Conclusions: future trajectories of environment and communication

Environmental communication research has come a long way in the last few decades, on the one hand consolidating itself as a distinctive subfield of media and communication research, while at the same time healthily diversifying in terms of theoretical frameworks, analytical approaches, and types of media and communications processes examined.

The main achievement is perhaps the considerable advances in the last two decades towards an increasingly sophisticated understanding of the complex processes involved in the discursive and social construction of the environment as an issue for public and political concern. Not least, as the chapters in this handbook demonstrate, environmental communication research has made great strides towards showing the complex and highly unequally distributed resources and power relations involved in public communication and definitions regarding the environment.

The final part concludes with two different, yet complementary, accounts of the field of environmental communication and two different, yet complementary, visions of the future trajectories of the field. In Chapter 30, Pieter Maeseele argues for a reorientation of research aims in environmental communication 'towards social roles of media in liberal democratic societies and the relationship between media(ted) discourses, power, and democratic politics'. Drawing from the literature on agonistic democracy, post-politics, and the populist moment, he outlines a framework of agonistic media pluralism for drawing conclusions about the contribution of mediated public discourse in facilitating or impeding democratic debate and citizenship.

Finally, in Chapter 31, Susanne C. Moser argues that 'two major trends – the increasing frequency of environmental crises and the pervasiveness of technology-based communication – open up a gap, a need, and an opportunity for an environmental communication that is not just a "crisis discipline" but that is oriented toward human welfare and connection'. She argues for a humanistic environmental communication and outlines how it may serve a society faced with severe environmental challenges. Proceeding to offer 'seven specific ways in which the environmental communication of the present and future can provide support, assist with social mobilization and ensure respect and dignity in times of crises', Moser closes with an appeal to environmental communication researchers and practitioners: Communicating in a time of crisis requires 'not just warnings and clarion calls to action but to partake in the restoration of our relationships to each other and between ourselves and the more-than-human world'.

Collectively, the following chapters explore the core concepts, theories, and findings that characterise the complex and diverse terrain of the field of environmental communication. In the 21st century's third decade, scholars and practitioners in environmental communication have much to guide us in our understanding of the sources and production, the media and cultural representations, and the public and political impacts of communication about the environment, and more. These reviews occur, as several authors emphasise, at a time when political, economic, and ideological interests, and the uneven distribution of communicative resources are increasingly entwined with environmental crises, placing both nature and human communities at risk. The contributions in this volume, therefore, address not simply the occurrence of crises, but the prospects for a field of environmental communication to fashion a response, one attuned to the environmental well-being of both human communities and the 'more-than-human world'.

# Environment, communication and environmental communication

## Emergence and development of a field

# 1

# EMERGENCE AND GROWTH OF THE FIELD OF ENVIRONMENTAL COMMUNICATION

*Robert Cox and Stephen Depoe*

The first decades of the 21st century witnessed the rapid growth and an increasingly international and diverse investigation into the nexus between environment and human communication, seen as constituting an academic "field" as such. Indeed, by 2011, scholars and practitioners had initiated the International Environmental Communication Association, "to advance the practice, study, and teaching of Environmental Communication in civic, political, educational, business, and cultural contexts" (IECA, 2012, para. 2).

This chapter traces the growth of scholarship and institutional support that, after four decades, can best be characterized as a trans-disciplinary field of inquiry. A *trans*-disciplinary arena in the sense that scholars working in different fields—social and political sciences, communication, media studies, environmental studies, rhetoric, and the humanities—have been contributing to a set of research problems that are closely articulated as "environmental communication."

Following a summary of the early history, we identify major areas of research, key assumptions, and heuristic questions generating research in this field, and emerging issues and challenges for scholars.

## Early scholarship and institutional support

Environmental communication, as a definable area within, and beyond, the communication discipline, emerged initially in North America and Europe in the 1970s and 1980s and more globally in succeeding decades. Early U.S. scholarship came out of the rhetorical tradition, including Oravec's study of naturalist John Muir's writings on the sublime response in nature (1981), Farrell and Goodnight's examination of rhetorical failures at the nuclear plant Three Mile Island (1981); Cox's identification of the irreparable appeal (1982); and Peterson's analyses of Dust Bowl-era rhetoric (1986).

Other early scholarship in Europe and the U.S. described features of news media—content, cycles of attention, and production of environmental meaning (Anderson, 1991; Burgess, 1990; Downs, 1972; Love, 1990; Nimmo and Combs, 1982; Ostman and Parker, 1987). Related research also examined the influence of news media in constructing the environment as a social problem (Schoenfeld, Meier, and Griffin, 1979), as well as relationships

between environmental advocacy groups and news media (Anderson, 1991; Greenberg, 1985; Hansen, 1993). Meanwhile, scholars in risk analysis had begun to question objectivist assumptions of risk (Slovic, 1987) and lay the basis for a communicative approach to environmental risk studies (Plough and Krimsky, 1987, 1988).

The 1990s and early 2000s also saw the emergence of book-length studies, including rhetoric and environmental politics (Killingsworth and Palmer, 1992); emerging patterns of environmental discourse (Dryzek, 1997; Myerson and Rydin, 1996); media, culture, and the environment (Anderson, 1997; Hansen, 1991); rhetoric and sustainable development (Peterson, 1997), media coverage of environmental issues (Neuzil and Kovarik, 1996; Shanahan and McComas, 1999); and the creation of environmental messages Corbett (2006), as well as environmental communication for natural resource managers, scientists, and engineers (Jurin, Roush, and Danter, 2010). Further evidence of an emerging field included important anthologies (Cantrill and Oravec, 1996; Hansen; 1993; Herndl and Brown, 1996; Muir and Veenendall, 1996), as well as a "landmark" anthology of environmental essays (Waddell, 1998). Finally, by the turn of the century, significant reviews of environmental communication were being published (Pleasant et al., 2002; see also Cantrill, 1993).

Institutional support in the form of professional working groups, international conferences, publishers, the inauguration of new journals, and academic programs and research centers also accompanied and helped to advance scholarship in environmental communication. The International Association for Media and Communication Research established a working group on Environmental/Science/Risk Communication in 1988. Two years later, the Society of Environmental Journalists, including researchers and working journalists, was created. At the same time, the Society for Risk Analysis formed a Risk Communication Specialty Group in 1990 for coverage of a range of risk-related—including environmental risk—research. And in 1991, the Association for Education in Journalism and Mass Communication formed a Science Communication Interest Group (which was later re-organized as ComSHER: Communicating Science, Health, Environment and Risk).

Meanwhile, a group of scholars in the U.S. held, in 1991, the first of what would become a biennial and international Conference on Communication and Environment (COCE). Interest in these conferences led in 1996 to the founding of an Environmental Communication interest group (later a division) within that country's National Communication Association (NCA). Finally, 2008 saw the formation of a Science and Environment Communication section within the European Communication Education and Research Association (ECREA).

Along with early efforts within existing professional associations to develop a new field of environmental communication, universities in Europe and North America made important commitments to form academic programs and research centers around questions of environment, society, and communication. In 1998, SLU-Uppsala in Sweden created the first academic unit dedicated to the study of Environmental Communication and Management, a graduate program as part of its Department of Urban and Rural Development. In the U.S., Yale University's School of Forestry and Environmental Studies formed the Yale Center for Climate Change Communication in 2005. Two years later, George Mason University rebranded its entire Department of Communication as the Center for Climate Change Communication. Soon after, Yale and George Mason formed a research partnership that has produced a raft of studies depicting and tracking changes in American public opinion pertaining to climate change, best known as the "Six Americas" project (2015 et al.). The work produced by the Yale-George Mason climate change communication research program represents one of the first breakthrough achievements in the field, impacting both public policy and journalistic coverage of climate change and other environmental issues.

In the following years, these and other developments would lead to three formative achievements in the emerging field:

First, the launch of *Environment Communication: A Journal of Nature and Culture* occurred in 2007. The journal (now simply, *Environmental Communication*) currently publishes eight issues annually with increased contributions worldwide in social science as well as qualitative, experimental, and critical analyses. Indicative of its broad international support, non-U.S. scholars currently make up 45% of the journal's editorial board.

Second, scholars and academic organizations from 32 different countries established the International Environmental Communication Association (theieca.org) in 2011 with the mission "*to foster effective and inspiring communication that alleviates environmental issues and conflicts and solves the problems that cause them.*"

Third, scholars in environmental communication are increasingly supported by a range of sponsored conferences, university programs and research centers, international journals (for example, the *Journal of Sustainability Education, Science Communication,* and *Science and Environmental Communication*), and dedicated book series by publishers such as Routledge and Palgrave-MacMillan.

The growing lists of international book series alone are providing broad and highly diverse coverage of a range of environment and communication subjects. Routledge's Studies in Environmental Communication and Media, for example, currently lists over20 book projects in such subjects as Hagen's (2017) *Public Perception of Climate Change: Policy and Communication*, Sklair's (2020) *The Anthropocene in Global Media*, and Kääpä's (2018) *Environmental Management of the Media: Policy, Industry, Practice* (2018). And Palgrave-MacMillan's Studies in Media and Environmental Communication is extending the international coverage with such books as Takahashi, Pinto, Chavez, and Vigón's (2018) *News Media Coverage of Environmental Challenges in Latin America*, and Lester's (2019) *Global Trade and Mediatized Environmental Protest*.

With increasing scholarly contributions and expanding institutional and publishing support, the trans-disciplinary field of environmental communication, by the second decade of the 21st century, had become global in scope.

## Key assumptions and organizing questions

In its early decades, the field of environmental communication inevitably witnessed differing subjects, approaches, and even conceptions of communication, sometimes constituting distinct "discourse communities" (Coppola and Karis, 2000, p. xviii). By the first decade of the 21st century, however, scholars had begun explicitly to identify some of the key assumptions or hypotheses characterizing this trans-disciplinary field. In asking whether such a field was a "crisis discipline," the inaugural issue of the journal *Environmental Communication* in 2007 featured an exchange regarding the "broad agreements or working hypotheses of a field that is defined by the articulation of 'environment' and 'communication'" (Cox, 2007, p. 12). In subsequent years other scholars extended this exchange, elaborating these "working hypotheses" as well as some of the basic organizing questions that continue to generate research in environmental communication (Cox, 2016; Milstein, 2009, 2012).

### *Working hypotheses*

Although addressing a range of subjects and modes of communication, much of the scholarship in the early decades of the field, nevertheless, proceeded from an implicit, at least, set of

hypotheses or epistemological assumptions about the relationships among communication, "environment," and the social/cultural/ideological contexts in which such communication occurs.

Among these working hypotheses were:

1  Social/symbolic and environmental processes are mutually implicated. That is, environmental problems are both materially produced—through interactions between human actions and bio-physical processes—and are also socially or discursively constructed. Such constructionist assumptions invite our understanding of "environment," "nature," and environmental "problems" as inextricably implicated with meaning, that is, the social/discursive investment of significance in our representations of the natural world (Cox, 2007, 2016; Depoe, 2007; Gamson and Modigliani, 1989; Hansen, 1991, 2019; Milstein, 2009, 2012).

2  Representations of nature or the environment embody interested and/or consequential orientations (Cox, 2007; Milstein, 2009; Oravec, 2004). Such representations both reflect and influence our social, economic, and ideological interests. As the cultural critic Raymond Williams famously observed, "the idea of nature contains, though often unnoticed, an extraordinary amount of human history" (1980, p. 67).

3  Social, cultural, economic, and other influences—including discursive strategies themselves—may foreclose communicative spaces in which the production (sense-making) of interested representations of "environment" are possible. Such discursive representations, in turn, may themselves enable, sustain, or challenge dominant discourses and other regimes of power having deleterious consequences for biological systems and human communities (DeLuca and Peeples, 2002; Maeseele, 2015; Milstein, 2009; Takahashi and Meisner, 2012).

4  As a consequence, much environmental communication scholarship can be viewed as motivated, implicitly at least, from an ethical or normative assumption. Proposed as a "crisis discipline" (Cox, 2007), such an ethical premise presumed that an understanding of communicative processes mediating "environment," and the discursive conditions rendering such communication possible, serve to strengthen the capacity of societies to deliberate and respond to situations relevant to the well-being of both society and natural biological communities. Similarly, Moser (2015) observed,

> it would be hard to deny that much of what has been written under the flag of 'environmental communication' in the late twentieth and early twenty-first century is not somehow motivated by or linked to an unease about environmental trends, problems, or dangers—however perceived.

From this perspective, she noted that, "the practice of environmental communication for many … aims to inform or help mobilize a more effective societal response to those growing dangers" defining the first decades of the 21st century (p. 402).

### *Major organizing questions*

Implicit also in the above assumptions are certain heuristic questions that continue to generate research along a broad continuum of environmental communication concerns. Among such questions are:

1 *How do persons in diverse communities and under differing social, geographical, and ethnic or in-digenous conditions, represent nature/environment?* That is, how do such persons discursively constitute nature/environmental phenomena, conditions, or processes as subjects for human understanding and/or action?

Such questions motivated some of the earliest scholarship—particularly rhetorical, constructionist, and ethnographic—in environmental communication. Ethnographic research, for example, explored ways in which distinct cultures and communities shaped human understandings of and responses to their physical environments (Carbaugh, 1996a, 1996b). For example, Carbaugh and Rudnick (2006) explored "how communication practices of place-naming and story-telling work together to create senses of place, including ways of living within a particular geographic landscape" in cultural discourses at the border of the Blackfeet reservation and Glacier National Park in Montana (p. 167).

More recently, other scholars have examined the elemental acts of pointing and/or naming as "the basic entry to socially discerning and categorizing parts of nature" (Milstein, 2011, p. 4) and as "an orientation to the world" (Oravec, 2004, p. 3). Such studies of the representation of nature/environment have ranged broadly, for example, from depictions of the "pristine" in 19th-century photographs of the American West (DeLuca and Demo, 2000) to ways in which the aesthetics of tourism texts "renders Africa invisible through anthropocentric distance" (Todd, 2010, p. 206). And, studies of the discursive transformation of space have described the framing of urban nature as "the Other" (Uggla and Olausson, 2013) as well as exploring the effects of "immersive 360° nature videos" in promoting environmental connectiveness (Breves and Heber, 2020, p. 332).

2 *What are the relationships between or among communication, individuals' values, beliefs, and/or perceptions, and their environmental behaviors?*

Closely related to the study of effects, scholars' investigation of the antecedents of individuals' environmental attitudes, perceptions, and/or behaviors has been a major feature of ongoing research. Such studies are, implicitly at least, a response to earlier findings of an "attitude-behavior gap," i.e., the weakness of individuals' attitudes in explaining environmental *behaviors* (Compton, 2008; Kollmuss and Agyeman, 2002; Schultz and Zelezny, 2003).

As a consequence, numerous studies have attempted to document the relationships between a range of antecedent variables and environmental behaviors (or behavioral intentions), for example, the influence of social ties on "favorable outcomes for pro-environmental campaigns" (Lee, Hon, Won, You, Oloke, and Kong, 2020, p. 444), climate-related facts and Green voting (Tranter, 2020), and the use of affective framing in lessening risk perceptions and greater acceptance of recycled water (Greenaway and Fielding, 2020). Of particular note has been Yale/George Mason's "Six Americas" research project that has attempted to enrich our understanding of attributes that characterize the segmentation of American public opinion concerning climate change since the first study was published in 2013.

3 *What effects or outcomes do environmental sources—news media, journalists, environmental pressure groups, green marketing, etc.—have on audiences, and how do scholars identify, trace, and account for these effects?*

Studies of the impact or outcomes of environmental sources constitute some of the earliest and most influential areas of research in environmental communication. Media

practices of framing and agenda-setting, for example, have been staples in such scholarship (e.g., Ader, 1995; Anderson, 1997; Hansen, 2010, 2019; Shanahan and McComas, 1999; Steger and Drehobl, 2018). Similarly, studies of the influence of "green" product claims on consumer perceptions and behavior have drawn considerable attention (For a review of this research, see Groening, Sarkis, and Zhu, 2018; Joshi and Rahman, 2015; Spack, Board, Crighton, Kostka and Ivory, 2012).

A closely related question for many scholars also has been: In what ways do activists, environmental non-governmental groups (ENGOs), and/or campaigns utilize communication resources to engage relevant decision-makers—public officials. corporations, or other governmental authorities—in addressing specific environmental problems? Analyses of ENGO's efforts to influence decision-making have a lengthy history in the field. Early scholars examined campaigns about natural resources (Oravec, 1984), image strategies of environmental activists such as Greenpeace (DeLuca, 1999), and uses of media by ENGOs in Europe and the U.S. (Anderson, 1997). More recently, Dutta (2020) examined how local Santhal communities in eastern India mobilized residents to protect sacred groves in part by emphasizing "community culture, knowledge, and aspirations" (p. 48).

In addition to studies of ENGO campaigns, scholars are also examining such groups' use of social media. Comfort and Hester (2019), for example, described the success of an environmental organization in using the participatory nature of networked media versus such groups' usual reliance on unidirectional messaging. Studies describing the role of the blogosphere (Schmid-Petri et al., 2020) and Twitter including, for example, Chinese ENGOs' uses of the microblogging platform Weibo (Zhang and Skoric, 2020) have centered principally on campaigns to raise awareness of climate change or mobilize supporters (for example, Thorson and Wang, 2020; Vu, Do, Seo, and Liu, 2020).

4    *In what ways do different modes of production, dissemination, and reception of scientific or technical information contribute to the understanding of, or constitute "knowledge" of nature or environmental phenomena?*

Building on earlier research on the relation of media and environmental risk (Allan, Adam, and Carter, 2000), studies of the production, dissemination, and reception of scientific/environmental knowledge range from technology diffusion (Skjølsvold, 2012) and the uses and influence of new media on public understanding of climate change (Nielsen and Kjaergaad, 2011; O'Neil and Boykoff, 2011) to the influence of local TV weather forecasters on public understanding of climate change as a local problem (Feygina et al., 2020).

Scholars also have paid considerable attention to the "information deficit model" (Suldovsky, 2017) or the thesis that providing more information or encouraging science literacy about an issue such as anthropogenic climate change leads to greater public acceptance or understanding. In their review of this research, for example, Hamilton and Fogg (2019) concluded that, "experimental studies that find opinions changing after provision of information give support to this view" (p. 10). Others, nevertheless, find that "scholars are divided over whether communicating to the public the existence of scientific consensus on an issue influences public acceptance of the conclusions represented by that consensus" (Landrum, Hallman, and Jamieson, 2019, p. 51). More generally, environmental communications scholars agree the association between scientific knowledge and the public's acceptance of human-caused climate change is complex and mediated by multiple factors, including social background, levels of education, and political party identification (Tranter, 2020, p. 539).

5  *How are individuals' sense of "self-in-place" or ecocultural identity affected or constituted by their understanding, lived experiences, and/or relations to their social, physical, and discursively constituted environments?*

Extending early scholarship on the environmental influences of the "self–in–place" (Cantrill, 1998; Cantrill and Senecah, 2001), environmental communication scholars have begun to investigate relations between communication and cultural/geographic spaces, and further to "link our understanding … to deeply seated notions of identity, and to the affective dimension of belonging which place-based communication often brings with it" (Carbaugh and Cerulli, 2013, p. 8). Shellabarger, Peterson, Sills, and Cubbage (2012), for example, have traced the impacts of land managers and humanitarian aid volunteers' differing perceptions of U.S. southwest borderlands with Mexico on conservation and human rights.

More recently, Milstein and Castro-Sotomayor (2020) advanced the thesis of socio-cultural influences on identity and relationships in local and global contexts in the multi–authored *Routledge Handbook of Ecocultural Identity*. Forty international scholars investigated the differing ways in which ecocultural identities evolve, are amplified, and/or are challenged by and through media and in different ecological and political spaces.

6  *What accounts for the existence or reproduction of dominant systems of representation or discourses of "environment," and what communicative practices contribute to the interruption, dilution, or transformation of such discourses?*

Often drawing upon critical social theories, scholars have traced the development, influence, and/or alteration of discourses sustaining dominant social, political, and ideological formations, particularly as these rationalize unsustainable practices of the natural world.

Others have examined the recuperative role that various communicative practices play in reaffirming or reproducing such discourses. Rogers' (2008) study of television advertisements for the consumption of meat, for example, found these ads "articulate the eating of meat with primitive masculinities as a response to perceived threats to hegemonic masculinity" (p. 281). Conversely, Hodgins and Thompson (2011) identified strategies of citation and parody used by Canadian artists and photographers to subvert the extractive and romantic "gazes" of the Canadian landscape.

More generally, Maeseele (2015) has posed the central question of an agenda for research, "to what extent do we find public discourse facilitating or impeding democratic debate and citizenship regarding environment and communication?" (p. 393). The principal objective for critical scholarship therefore becomes the identification and explication of those public discourses which make possible or sustain the communicative space for debate about democratic futures, as well as scrutiny of "those discursive strategies that aim at its foreclosure" (Maeseele, 2015, p. 393).

## Major research foci

Such heuristic questions have—over the decades—spurred robust and wide-ranging research programs in environmental communication scholarship. Working often from differing disciplinary foci and theoretical frames, scholars have addressed the nexus between communicative practices and numerous environmental and climate concerns. This scholarship might be best summarized by some of the subject clusters reflecting this scholarship. Among these areas of investigation have been:

## 1. Climate change/climate science communication

The extensive and multi-layered studies of climate change (and climate science) communication have become virtually a field of their own. Initially, research centered around the difficulties of scientists and other sources in communicating the phenomenon and causes of anthropogenic climate change to publics who viewed such change as distant, unobtrusive, outside of their personal experiences, and/or the result of natural causes (Moser, 2007, 2010). Still, such communication, often premised on an information deficit model (Dickson, 2005), appeared to be inadequate to the challenge (Leiserowitz and Smith, 2010).

Environmental communication scholars, therefore, began to explore other factors influencing public awareness and/or a willingness to act. Bayes, Bolsen, and Druckman (2020), for example, have reviewed the impact of communicating the scientific climate *consensus* to the public. In addition to studies of science communication, scholars have also examined the modes of appeal used by governmental agencies, energy companies, and environmental groups in conveying climate messages to the public. While some, for example, have attempted fear-inducing or "apocalyptic" rhetoric in their climate communication (Carvalho and Burgess, 2005; Foust and Murphy, 2009), scholars generally have found little evidence for the effectiveness of such appeals (Moser and Dilling, 2007; O'Neil and Nicholson-Cole, 2009). More promising has been the study of different message frames, including "energy security," "morality and ethics," and "public health" (Carvalho and Peterson, 2009; Lakoff, 2010; Maibach, Nisbet, Baldwin, Akerlof and Diao, 2010; Nisbet, 2009).

Other sources include the communication of climate change deniers (Jacques, Dunlap, and Freeman, 2008; Moore, 2009; Oreskes and Conway, 2010), as well the rise of partisan or self-interested information providers in new media that, in turn, have nurtured skepticism about climate change (Bloomfield and Tillery, 2019; Cox, 2013b). Meanwhile, other scholars have investigated media and climate-related effects such as heat waves and wildfires (e.g., Hopke, 2020). And a multi-university collaboration, Media and Climate Change Observatory (McCCO) monitors regional and international news media coverage (newspapers, radio, and TV) of climate change in 54 countries (see contemporaneous reports at: http://sciencepolicy.colorado.edu/icecaps/research/media_coverage/index.html).

Finally, apart from media sources, some have argued there has been a lack of attention to the *public's* engagement with climate change. Carvalho, van Wessel, and Maeseele (2017), for example, have called for a refocusing of research on *citizens' political engagement*, including those "communication practices that constrain citizen political engagement with climate change by depoliticizing climate change, [as well as] … alternative communication practices that have the potential to politicize [it]" (p. 122).

## 2. Communication and environmental quality/nature-as-a resource

Reflecting environmental issues broadly, considerable scholarship has focused on a cluster of concerns arising from societal uses of, and responses to, nature and natural resources—air, water, energy sources, etc.— referenced variously as environmental quality, energy communication, natural disaster communication, etc. Here, we distinguish two general research clusters:

### (1) Air and water studies:

Studies relating to air quality concerns (e.g., haze) and water-related problems (e.g., flooding, polluted drinking water) have constituted a wide-ranging cluster of environmental

communication research. Such studies have examined not only news coverage of air and water pollution *per se*, but also community perceptions of risk and information seeking around these problems, as well as citizen engagement with resource management decisions. Scholars, for example, have investigated urban residents' information seeking and communication about haze and smog air pollution in countries such as China and Singapore (Jiang, Kim, Liu, and Luo, 2019; Kim and Lai, 2020; Lin, 2019; and Yang and Huang, 2019).

Similarly, studies of water-related problems have ranged from news media representations of health risks of water (Mayeda, Boyd, Paveglio, and Flint, 2019); drought (Colston, Vadjunec, and Fagin, 2019); water conservation (Reynolds-Tylus, Gonzalez and Quick, 2019); and emergency evacuation during hurricanes (Greenaway and Fielding, 2020); to the ways in which "heritage narratives" mediated community conversations about severe flooding (Carmichael, Danks, and Vatovec, 2020, p. 300).

### (2)  Energy studies—Nuclear, oil and gas pipelines, renewable energy:

Energy-related concerns continue to be a multi–issue spectrum of research. Such studies have ranged from communication around clean energy, including wind (Gearhart, Adegbola, and Guerra, 2019), nuclear energy, and carbon sequestration (Feldpausch-Parker and Peterson, 2015), to controversies over natural gas and oil pipelines (e.g., Johnson, 2019; Moore, 2018).

Studies of nuclear energy have been participially prominent, including surveys of media coverage and public opinion about nuclear power (e.g., Culley, Ogley-Oliver, Carton, and Street, 2010; Mercado-Sáez, Marco-Crespo, and Álvarez-Villa, 2019), particularly after nuclear accidents such as the Fukushima Daiichi nuclear disaster (Arikawa, Cao, and Matsumoto, 2014; Friedman, 2011). Other scholars, however, have complained there remains "a dearth of research that analyses *online* discourses about nuclear energy" (Ho and Kristiansen (2019, p. 432; emphasis added). (For a comprehensive review of communication research regarding nuclear energy, see the 2019 special issue of *Environmental Communication*, "Environmental Debates over Nuclear Energy: Media, Communication, and the Public.")

### 3.  Visual representations or the "imaging" of environment

By the second decade of the 21st century, studies of media representations of the environment had moved substantially beyond rhetorical and linguistic analyses to studies of the *visual* in its own right. Two impulses prefigured this interest. In the U.S., DeLuca's and Demo's (2000) "Imaging Nature: Watkins, Yosemite, and the Birth of Environmentalism" examined the cultural and political work of visual rhetoric—Watkins' 1860s photographs of Yosemite Valley— in depicting the American landscape. And, in the UK and Europe, studies of televised news coverage of climate change and other environmental risks (Cottle, 2000; Hansen and Machin, 2008; Lester and Cottle, 2009) documented both the challenge visually depicting many environmental problems and the ways in which news organizations "lean toward well-trodden frames of reference to make issues recognizable to audiences" (Hansen and Machin, 2013, p. 157).

In more recent years, studies of visual representations or imaging of nature have proliferated across a range of subjects, reflecting the sentiment expressed by Hansen and Machin (2013) that environmental communication scholars should provide a more comprehensive account of the semiotics, composition, and "sites of meaning-making" characterizing such visual representations (p. 163). These have ranged from photographic images of polluted landscapes and peoples (Cammaer, 2009; Peeples, 2011, 2013); images linking "wildness"

and "nature as primitive" in sports advertising (Ferrari, 2013); effects of the "Romantic gaze" and "extractive gaze" in distancing people from nature (Hodgins and Thompson, 2011; Takach, 2013), and the efforts to integrate visual meaning into social-scientific methods on mediated research on visual representations of climate change (Culloty, Murphy, Brereton, Suiter, Smeaton, and Zhang, 2019) to the effects more recently of immersive 360° nature videos (Breves and Heber, 2020).

## 4. *Problematizing the human/nature binary*

The assumption of a culture/nature or human/nature binary, particularly in Western societies and in much of environmental communication research itself, has been questioned by a number of scholars (Carbaugh, 2007; Milstein and Kroløkke, 2012; Peterson, Peterson, and Peterson, 2007). Influenced by Rogers' initial 1998 call for a materialist theory of communication that goes beyond "constitutive" theories, such scholars have sought to appreciate the ways in which nature or non-human species "speak," engage, or influence humans and/or their environments. Milstein (2012), for example, has called for scholars to interrogate the ways in which nature's communication *mediates* human-nature relations. Such an emphasis would consider "nature as co-present, active, and [a] dynamic force in human–nature relationships" (pp. 167, 171).

Efforts to avoid reifying the natural world also open the study of environmental communication to the possibility of articulating "agency beyond the human world" or nature as "an active subject" (Milstein, 2012, p. 167). Such a prospect echoes Rogers (1998) call for a "re-hearsal of ways of listening to nondominant voices and extra-human agents and their inclusion in the production of meaning" (p. 268). Relatedly, Essen and Allen (2017) have explored "the bridging potential of 'interspecies' solidarity between the often incommensurable ethics of care and justice" for nonhuman species (p. 641). Finally, research has focused on the discourses of "othering" and nonhuman agency (Dare and Fletcher, 2019) as well as problematizing of an "anthropocentric lens" through which humans view the natural world (Aswad, 2019).

Other recurring research clusters with a media or communicative focus for environmental subjects include, although not an exhaustive list, inquiries about the ecosystem and natural resources planning (Daniels and Walker, 2001), endangered species and wildlife (Abrams, Leong, Melena, and Teel, 2020), risk communication (Gurabardhi, Gutteling, and Kuttschreuter, 2004), citizens' participation in governmental decision-making (Brulle, 2010), and "green" marketing, including greenwashing (de Jong, Huluba, and Beldad, 2019), among other areas.

## Emerging areas and research challenges

Apart from shared assumptions, basic questions, and principal areas of investigation, the environmental communication field is also witnessing the emergence of new inquiries and challenges for scholarship in this still developing field.

## 1. *Internationalization of research and north-south imbalances*

While journals, book series, and conferences are increasingly featuring environmental communication concerns beyond an Anglo-speaking world, the field is only beginning to investigate imbalances in North-South media and other communication resources, as well as citizens' access to governmental decision processes.

On the one hand, some attention is beginning to be paid to international media and communication practices with book-length projects as Pinto, Prado, and Tirado-Alcaraz's *Environmental News in South America: Conflict, Crisis and Contestation* (2017); Das' *Reporting Climate Change in the Global North and South: Journalism in Australia and Bangladesh* (2019); and Liu and Pezzullo's *Green Communication and China: On Crisis, Care, and Global Futures* (2020), among other, similar publications.

On the other hand, divergence or imbalances in North–South media and other communicative resources have been less investigated. This is particularly the case as power imbalances are exacerbated in moments of crisis generated by the increasing number of extreme weather events (floods, fires, hurricanes, etc.) prompted by the changing climate. Keller et al. (2020), for example, pointed out that

> Most studies still analyze news media coverage of climate change in developed countries, e.g., in the US, the UK, Australia, or European countries… But these studies have largely ignored other, equally important countries—namely developed countries and 'emerging economies' like India.
>
> *(p. 220)*

An early attempt to explore such issues occurred with Soward's (2012) special issue "Environmental Justice in International Contexts: Understanding Intersections for Social Justice in the 21st century," in *Environmental Communication.* More recently, contributors to Díaz-Pont, Maeseele, Sjolander, Mishra, and Foxwell-Norton's anthology *The Local and the Digital in Environmental Communication* (2020) interrogated tensions in local and global access and differing uses of digital technologies across various geo-cultural and global regions, particularly by journalists, NGOs, and local communities in their struggles for environmental justice.

## 2. *Decolonizing environmental communication*

Emerging from work in geography, indigenous studies, critical race theory, and related disciplines, a number of scholars in environmental communication recently have initiated critical projects decolonizing some of the dominant discourses, naming projects, and other practices undergirding the dominant culture's relationships with natural and human environments/ communities. Na'puti (2019), for example, argues that "colonial naming projects" depict the Marianas archipelagoes "as distant, tiny, empty, or merely (is)lands for US geostrategic control." Na'puti argues, instead, for an understanding of "how Indigenous epistemologies function as archipelagic rhetoric enacted through a Chamoru sense of place" (p. 4). Similarly, de Onís (2018) interrogated the hegemonic discourses of "energy coloniality" in the emergency management linked to the "unnatural disaster" in the aftermath of Hurricane Maria in Puerto Rico and other Caribbean islands (p. 535).

Such decolonial projects promise a rethinking and new lines for scholarship in environmental communication, including, as Freeman (2020) notes, a "humility" related to "gaining more respect for the sustainability and wisdom of many 'less developed' traditional cultures" (p. 443, n10). Illustrative of such promise is Castro-Sotomayor's (2020) deploying of the concept of territorialidad in his research with Awá, binational Indigenous people living at the border between Ecuador and Colombia. As a decolonial perspective, he argues, "territoriality (1) counters Western narratives that privilege the global over the local; (2) offers novel ways to understand translation as both a communicative practice and a historicist inquiry; and (3) furthers the notion of ecocultural identity" (p. 50).

### 3. *Media ecology, complexity, and outcomes*

Studies of media ecology or the domain in which communication about environmental and climate concerns circulate and produce effects increasingly are inviting scrutiny, not only of traditional media-centric research, but also the challenge of tracing these effects or outcomes vis-a-vis the multidirectional flows, levels, user interactions, and instability of meanings (Lester, 2015). In the context of environmental NGOs' uses of new media, for example, Cox and Schwarze (2015) noted few studies have fully traced the strategic implications of such communication, "particularly within complex, open networks in which multiple sources, diffuse audiences, user participation, and remediation characterize" this milieu (p. 82).

Increasingly, media scholars such as Anderson (2015) have been calling out the limitations of media-centric approaches, a focus exclusively on examining media representations that "inevitably produce a partial and narrow picture…" (p. 380). The multi-directional and networked nature of information in contemporary coverage of issues such as climate change, she argued, "demand a major rethinking of early media-centric approaches" (2017, p. 1).

As a consequence of the greater complexity and scale with new communicative technologies, some scholars are employing systems or "discourse network analytic" approaches (Schulz, 2020, p. 202) in their efforts to identify the flow and outcomes within wider communication fields. Illustrative of such an approach is Bloomfield and Tillery's (2019) effort to trace the "networked space" online—including practices of reposting and hyperlinking by climate deniers—that contributes to the dismissal of scientific information on climate change (p. 23).

### 4. *Food systems, race, and culture*

Food studies, including filmic representations of food and agricultural production, appeared early in environmental communication and related scholarship (for example, Retzinger, 2002, 2008). Nevertheless, as Gordon and Hunt (2019) observed, "while environmental communication scholars have legitimated food as a topic of inquiry, the entangled ecological, cultural, economic, racial, colonial, and alimentary relations that sustain food *systems* demand greater attention" (p. 9). As a result, some scholars more recently have called for more nuanced investigations of food systems and intersections between environmental concerns and food, transportation, labor, and other issues, with particular attention to discourses of justice or equity surrounding food (Gordon and Hunt, 2019; Opel, Johnston, and Wilk, 2010; Retzinger, 2010).

Reflecting the "entangled" set of relations imbricating food, the International Environmental Communication Association (IECA) hosted a global, online conference on *Communicating for Food Sustainability in 2020*. Its scope included not only land and water use, food production, packaging, and waste, but important ways food "may also connect with morality, ethics, … labor and culture … [and] social structures" (theieca.org, 2020). This focus is now firmly established within this trans-disciplinary field.

### 5. *Critical, engaged, and change-oriented scholarship*

Recently, some scholars have raised concerns for a more critically engaged orientation for research that is attuned to voices and communities most suffering from environmental inequities. Such communities are often predicated on what Pezzullo (2016) termed "alienated sacrifice zones in which [pollution] waste and certain populations (raced, classed, gendered, and stigmatized through illnesses) are deemed appropriately in their place" (p. 179).

In 2020, a group of 18 scholars in environmental communication issued a call for what they termed "critical, engaged, and change-oriented scholarship" (Joosse et al., 2020, p. 758). Reflecting earlier descriptions of the field as a discipline of "crisis and care" (Pezzullo and Cox, 2021), they defined this orientation as:

> *Critical* research is driven by a commitment to social justice and rights …, aims to challenge taken-for-granted knowledge… *Engaged* research aims to involve non-academic individuals and groups in the research process and focuses on issues of social concern, i.e. research *with* and *for* people rather than *on* people … *Change-oriented* research is problem-driven and targets processes of social change.
>
> *(p. 759)*

The authors proposed that these "concepts together promote the idea of research as an embedded and reflexive practice that cannot stand on the sidelines of society" (p. 759).

> Others pointed to a rationale for such a critically engaged research focus. Raphael (2019), for example, argued the environmental inequities experienced by marginalized groups "stem in part from distorted public communication and participation, which devalues these groups' voices and interests in the news media, [in agencies'] risk communication, and social and economic development."
>
> *(p. 1087)*

By the beginning of the 21st century's third decade, scholars appear to have embraced many of the working hypotheses or tenets for the field of environment and communication, as well as the value of professional associations and other forums for the support, collaboration, and dissemination of their work. In many ways, Goshorn's (2001) vision for a new field had become real as environmental communication scholars have come to engage discourses about the environment as a "constitutive force, not just a topical cluster of issues, events, or campaigns" (p. 321). The following chapters survey the scholarship defining the principal contributions of this vibrant field.

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# 2

# SOCIAL SCIENCE APPROACHES TO ENVIRONMENT, MEDIA, AND COMMUNICATION

*James G. Cantrill*

As I observed in the first edition of *The Routledge Handbook of Environment and Communication*, the sundry social scientific approaches to environmental issues and human communication may best be conceptualized as a large harbor of allied disciplinary vessels. Unlike various physical sciences such as biology and chemistry, each of which certainly informs our understanding of the environment around us, the social sciences focus on the ways in which people think, act, and interact upon those corporeal seas. As a flotilla of many scholarly fields—particular in the disciplines of economics, history, human geography, political science, psychology, and sociology—the environmental social sciences also provide us with a richer understanding of how and why it is that the natural world seems to be spinning into a maelstrom, especially today regarding the onslaught of changing climatic conditions. And, following Latour (2005), any attempt to explain the social scientific bases of human behavior that eschews at least a nod toward what people say and how they act is, at best, shortsighted. Thus, it is not surprising that several chapters in the first and current edition of the *Handbook* implicate various theoretical and empirical streams weaving through the ebb and flow of the environmental social sciences.

In 2015, I hoped to update my earlier efforts (Cantrill, 1993) introducing a range of social scientific literature typically not referenced in the rhetorical tradition characterizing the practice of environmental communication research up until that time. I began that chapter by briefly overviewing the lineage and various fundamental tenets of the social sciences *in genere* so as to place their applicability to the study of environmental communication in a broader historical context. That analysis was followed by a selective review of conceptualizations and research in various environmental social sciences of the day. In this edition of the *Handbook*, I would ask the inquisitive reader to examine the earlier volume for a good deal of background material, as well as references to classic studies in the environmental social science tradition, as I now update much of what I cited and contextualized a few years ago. As Maki, Cohen, and Vandenbergh's (2018) meta-analysis demonstrates, the social scientific study of environmental relationships has grown considerably in recent times and, after re-emphasizing why the environmental social sciences matter in the study of environmental communication and media, I intend to provide a contemporary, bird's-eye view of the empirical landscape. At the end, along with others, I will argue for both the further integration

of the environmental social sciences as well as the increasing need for such insights to be applied in the practical public sphere of discourse and policy making in regard to the changing environment on Earth.

## Why should social science matter to the study of environmental communication and practice?

What could be seen as something of a transparent question may not be as simple as it seems. Many scholars interested in studying the relationship between social discourse and environmental conditions, policy, and action in the public sphere continue to eschew even a nodding acquaintance with social science approaches to the subject matter. Maki et al. (2018) reason that, although a great deal of scholarship related to environmental communication in fields such as rhetoric, English, and the arts in general, the social sciences typically diverge from those tacks in fundamental ways. Whereas the humanities-based disciplines generally focus on the substance of discourse produced in or on behalf of the environment (i.e., the *what of* or *how* discourse plays out in the drama of human affairs), the environmental social sciences more often focus upon the ways in which received communications may or may not result in positive social influence (i.e., *why* environmental communication succeeds or fails). In a widely cited article, Bennett et al. (2017b) argue that human dimensions of the environment are essential "to produce robust and effective conservation policies, actions and outcomes" (p. 94; See also, Brewer & Stern, 2005). More pointedly, reacting to the American Sociological Association's report on global climate change, Stoddart, Ylä-Anttila, and Tindall (2017) concluded in the same year:

> The political sphere and the media sphere are key sites for the politics of climate change, where the meaning of the causes and consequences of climate change, as well as policy responses for mitigation and adaptation, are contested and negotiated among policy makers, corporate interests, environmental scientists, environmental movements and counter-movements.
>
> *(p. 309)*

The tendency to focus upon how and why individuals think about and react to environmental discourse might be exemplified by Langenbach, Berger, Baumgartner, and Knoch's (2020) recent examination of the moderating role played by cognitive capacity in the relationship between pro-environmental attitudes and ensuing behavior. In a tightly reasoned study, Langenbach et al. found that the extent to which people—even those who may be inclined to engage in pro-environmental behavior—can more or less control their thought processes in a mindful way determines if they will follow through in accordance with their attitudes. The authors argue that any informational campaigns attempting to modify behavior by increasing awareness or instilling fear may fall short unless they also induce conditions where pro-environmental actions are less cognitively effortful (i.e., working memory being stressed by competing demands), especially for those whose mental resources are limited to begin with.

To the extent, social scientists, in general, pursue multiple objectives at different times in a range of disciplines (e.g., to describe, theorize, predict, and ultimately understand our social world). Moon and Blackman (2014) argue that scholars interested in the role played by communication processes (as well as natural resource practitioners) may fruitfully turn to social science research that has focused on human–environment relations. Castree et al. (2014) state that, in particular, the practice of environmental social science:

Has two aims: (1) to study systematically the presuppositions, norms, perceptions, preferences, relations, regulations and institutions that together structure how humans value and use the non-human world; and (2) to identify and evaluate ways of altering human behaviour in light of one or more definitions of desirable or necessary ends.

*(p. 765)*

In the next section of this chapter, I will demonstrate the fundamental nature of these environmental social science specialties, point to specific ways in which different research specializations can improve our understandings of environmental communication dynamics, and offer illustrative research examples embedded in different disciplines.

## Environmental specialties in the social sciences

Environmental foci in contemporary social science are quite varied (for general reviews, see: Bennett et al., 2017b; Cox, 2015; Moran, 2010), as are the approaches taken to make sense of those issues. Interestingly, reviews of research routinely fail to include the growing body of social scientific empiricism in the field of Communication Studies even though that research tradition adopts the same methods and theories as the "mainstream" environmental social sciences. Perhaps such omissions are due to the, arguably, reasonable perception that the field of Communication Studies was once dominated by humanistic treatments or that those scholars have been somewhat parochial in their choice of publication venues (just as may be scholars in any one of the other environmental specialties).

In the environmental social sciences, researchers with more of a positivist bent often use questionnaires and psychometric scales (or, in the case of environmental history and economics, software designed to categorize textual data or extract information from large, pre-existing data troves) to test hypotheses or answer research questions using, more often than not, convenience samples drawn from a population or universe of interest. In turn, non-parametric or inferential statistics are employed to ferret out and measure reliable differences between variables. On the other hand, those who are more subjectively inclined lean into the practice of qualitatively inspecting texts (e.g., interviews or ethnographic accounts) in an effort to deconstruct the meanings and feelings respondents have regarding one or another environment-based prompt. The difference in approach is sometimes thought to reflect a tradeoff between seeing causal relationships at play versus approaching the richness of a person's lived experience. Yet the fact remains: Both the subjectivist and the positivist must take whatever data they generate and make a compelling argument as to the relationship between what they observe and environmental features at the heart of the empirical puzzle (cf. Ziman, 1968). This fundamental tenet holds true for each of the environmental social sciences I overview: Environmental Economics, Environmental History, Environmental Human Geography, Environmental Politics, Environmental and Conservation Psychology, and Environmental Sociology.

*Environmental Economics.* As a distinct specialization within a field often characterized as "the dismal science," Environmental Economics examines the nexus between environmental quality and the market behavior of individuals and institutions, with a special emphasis on how economic incentives hasten or attenuate the depletion of natural resources at both macro- and micro-economic levels of classical cost-benefit analysis (Fullerton, 2020). Arising out of the post-industrialist advent of modern environmentalism in the 1970s, and following Garrett Hardin's (1968) "Tragedy of the Commons" treatise, it continues to be

a maturing area of study, more recently related to issues of natural resources sustainability (e.g., Tietenberg & Lewis, 2018), the role of ecosystem services (e.g., Banerjee, Cason, de Vries, & Hanley, 2017) and climate change abatement (e.g., Maréchal, 2012). Scholars in this tradition typically rely upon well-established economic concepts and somewhat esoteric formulae using survey methods or critical analysis to explore monetary policy and practice related to the environment. A number of excellent texts have been published to introduce the subject to general audiences (e.g., Hanley, Shogren, & White, 2019; List & Price, 2013) or to review various ecosystem services as they relate to economic theory and practice (e.g., Muddiman, 2019).

Of all the environmental social sciences, research, and theory, the field of Environmental Economics provides the least direct reference to communication, either in general or specifically tied to environmental issues. Such should not come as a surprise given its focus upon structural market forces. However, insofar as financial security abets social and ecological integrity in producing a sustainable society (e.g. Hawken, Lovins, & Lovins, 1999), communication scholars can find in the field of Environmental Economics a treasure trove of concepts and interactions related to natural resource management and pollution prevention. It is clear that issues such as the failure of market forces and private externalities to forestall environmental degradation (Porter & Van der Linde, 1995), the pooling of common resources under conditions of scarcity and rivalry (Garau-Vadell, Gutierrez-Taño, & Diaz-Armas, 2018), or impacts of globalization on international resource management (Bednarik, Linnerooth-Bayer, Magnuszewski, & Deickmann, 2019) offer sundry avenues for exploring the link between communication practice and environmental conditions. Just as probative is the argument that alternate mechanisms exist by which to value environmental resources (e.g., Garrod & Willis, 1999). Thus, in one way or the other, researchers who index economic interests in their studies invariably encounter the tension that exists between the maintenance of "natural capital," such as ecosystem services attending biologically diverse landscapes, versus merely pursuing more tangible aspects of economic value such as resource extraction (e.g., Ezzine-de-Blas, Corbera, & Lapeyre, 2019). Corporate and public discourse in each of these areas certainly seems central in managing conflicts between profit maximization and the sustainability of pooled environmental services.

For a specific example of the relationship between environmental economics and environmental communication, consider the analysis of Kerr, Lapinski, Liu, and Zhao (2017) regarding what happens when promises involving "payments" for degrading environmental services (e.g., carbon offsets) are ended. Their conceptual model integrating economic and communication science highlights the role played by financial incentives in directing intrinsic social norms after the incentivizing stops. The authors demonstrate that by introducing financial incentives and activating existing social norms regarding conservation, disjunctive (i.e., social prohibitions against environmental degradation), and injunctive (i.e., conventions in favor of conservation behaviors) norms may change and can continue to influence pro-environmental action even after the incentives are withdrawn. The pivotal strategic moves to make are in deciding which existing social norms interact with economic considerations influencing personal and social decision-making, understanding group identities that discursively reinforce those norms, and determining extant attitudes regarding the behavior in question (see also: Lapinski, Kerr, Zhao, & Shupp, 2017). This study thus offers environmental communication scholars an example of how a better understanding of interaction dynamics as they relate to market-force considerations that may enhance efforts after sustainable societies.

*Environmental History.* To the extent historians, in general, use critical and interpretive methods to reflect upon and deconstruct past relationships between people and conditions encountered across the span of time, it is not surprising that environmental history has a significant niche in the literature of the field (Lambert, 2015). As a specialization, it focuses upon the relationship between nature and human agency, adopts both positivist and subjectivist orientations (i.e., extracting key events versus discursive exchanges as progenitors of environmental problems and solutions), and, as with Environmental Economics, emerges full-force in the tumultuous 1960s (Bird, 1987) thereby influencing a new generation of scholars (e.g., Cronon, 1991; White, 2004). A number of comprehensive overviews of Environmental History exist (e.g., Armiero et al., 2019; Hughes, 2016; Isenberg, 2017), each of which demonstrates the wide scope of subjects approached through the lens of this sub-field. Ultimately, however, most environmental historians figuratively adopt as their creed the words of George Santayana (1905): "Those who cannot remember the past, are condemned to repeat it" (p. 284).

Scholars of environmental communication often find in the multidisciplinary troughs of Environmental History a fertile sea of research topics. As exemplified elsewhere in this *Handbook*, rhetoricians have used communication theory to explore the historical nature and impact of conservation advocacy, science and technology, movement dynamics, and policy deliberations. In much the same way, environmental historians have often used social scientific approaches to examine situated discourse, illuminating many ways in which time unfolds *vis à vis* environmental risk (e.g., Baker, 2019; Williamson & Courtney, 2018). Clearly, some topics such as the discourse of environmental groups (e.g., Thomson, 2017), the clash between indigenous and colonizing cultures (e.g., Kercsmar, 2016; Smithers, 2015) or the promotion of agricultural science (e.g., Arend, 2019) appear to be more amenable to communication analysis, but several other subjects suggest themselves as well. Nonetheless, those wishing to study the intertwining threads of historical events and symbolic action would do well to appreciate both the natural and social science underpinnings of any subject thus approached, as well as a variety of methods for doing so.

Timely examples of the goodness-of-fit between Environmental History and Communication Studies can be seen in the field's growing focus upon the uses of oral histories in confronting environmental exigences (e.g., Holmes & Pilkington, 2011; Liu, Moreno, Song, Hoover, & Harder, 2016). A particularly timely example of this trend is Williams and Riley's (2020) review of a host of historical and anthropological research concerning perceptions of climate change trends over time. The authors argue that oral histories of changing climatic conditions provide entré into diverse sets of environmental knowledge, resilient cultural practices, and developing power relations in society. By privileging lived experiences of climate change and the socially mediated nature of such perceptions over purely physical measurements, oral histories often provide both a lengthier span of observation as well as identify evidence of climate change too nuanced to be seen by climate scientists. In this vein, Williams and Riley conclude:

> … The great utility and relevance of oral history as part of the methodological toolkit of researchers who are attempting to reconstruct past environments, events, and processes. This growing body of work within environmental history, environmental studies, and other disciplines has demonstrated the usefulness of oral testimonies from a variety of contexts as important sources on past environments and environmental change. Such research presents a convincing case for researchers to take oral testimonies seriously as sources of data with relevance that extends far beyond narrowly-defined social science.

Yet oral histories are far richer than an additional source for "data" about past environments. The promise of oral history, we argue, also rests in its potential as a means of understanding how humans *relate to*, *understand*, and *shape* their environments. Put differently, oral history has been powerfully used as a means of examining the practices and experiences which constitute human–environmental relations.

*(p. 218)*

*Environmental Human Geography.* Perhaps no other specialization in the social sciences captures the essential integrative quality of modern environmental communication studies as does Environmental Human Geography (a.k.a., "environmental studies," albeit largely distinct from natural science–based integrative geography and the more anthropologically oriented cultural geography or human ecology). Although not as distinct a specialization as other foci examined in this chapter, Environmental Human Geography stresses the relationships between human-social conditions and the more physical, dynamic environment (Zimmerer, 2016). The field avails itself to a wide array of interdisciplinary topics ranging from millennial archeology to current land use planning to persistent problems of environmental justice to ongoing interaction between humans and the places they inhabit (Castree, Kitchin, & Rogers, 2013). It is also one of the few social sciences that regularly span the "two cultures" (Snow, 2001) of science and the humanities in the academy. A great deal of literature here is speculative and conceptual, though more tightly empirical approaches abound, and Environmental Human Geography represents some of the most qualitatively-oriented avenues we have to study environmental issues. College students are often exposed to this range of subjects and methods by way of various well-received introductory texts related to Human Environmental Geography (e.g., Braun, 2017; Moseley, Perramond, Hapke, & Laris, 2012).

Considering the quite eclectic range of disciplines drawn upon by both communication scholars and environmental human geographers, one would expect a substantial overlap in their areas of research interests. For example, both domains use quantitative and qualitative methods to explore the relationship between climate change and culture (e.g., Parsons, 2019; Simandan, 2020), habitation patterns (e.g., Borén, & Young, 2013), and adaptive behaviors in times of uncertainty and risk (e.g., Pelling & Dill, 2010). And, without a doubt, environmental human geographers (e.g., Allen, 2012) and environmental communication scholars (see Cantrill & Budesky, this volume) have shared the limelight along with conservation psychologists in pursuing studies of place identity and attachment (for a review, see: Lewicka, 2011).

Given the sheer expansiveness of Environmental Human Geography, it should not come as a surprise that a great many projects in this scholarly area have focused on the issue of climate change, each of which more-or-less index the role of environmental communication and the media (see, also: Cantrill, Budesky, & Burroughs, 2019; Upham, Johansen, Bögel, Axon, Garard, & Carney, 2018; Zurba, Maclean, Woodward, & Islam, 2019). And much of this body of geographic research references the impact one's perception of place has in communicating about and making decisions that can mitigate global warming. For example, employing factor and path analyses, Groshong, Stanis, Morgan, and Li (2020) examined the relationship between place attachment, pro-environmental behavior, and support for climate change mitigation communications. They found that different elements related to place attachment significantly increased general acceptance of both personal responsibility for climate change mitigation behaviors and land use management directives in a system of state parks. Thus, place attachment to relatively local geographic spaces mediates attitudes

toward climate change abatement behaviors, suggesting that such beliefs may be amenable to persuasion and influence.

*Environmental Politics.* As with other approaches to social sciences that focus on the environment, Environmental Politics is a specialization within the larger field of political science. Grounded in an intellectual tradition going back to at least the writings of Plato, scholars in this area attempt to understand relationships between political behavior and public policy making related to the natural world (Carter, 2018). As such, it encompasses the wide range of theories and methodological orientations the discipline of political science embraces, intersecting as it does with other fields in the academy such as psychology (e.g., Anspach & Draguljić, 2019), legal studies (e.g., Fleischman et al., 2014), and international relations (e.g., Zimmerer, 2016). And, of all the environmental social sciences, this field likely has the most significant impact on the content of environmental journalism and media (Hays, 2000). A number of useful introductions to Environmental Politics have been crafted by scholars who, following more general trends in the late 20th century, also galvanized their interests around the study of environmental problems and natural resource issues (e.g., Rosenbaum, 2020; Vig, Kraft, & Rabe, 2021).

Just as environmental communication scholars have focused on various aspects of political life so, too, have those in Environmental Politics studied the same, and often with a nod toward the symbolic dimensions of their subject matter (e.g., Boucquey, 2020; Forchtner, 2020). Researchers have developed a rich compendium of studies exploring several topics including environmental world views embodied in different professions (e.g., Dryzek, 1997), the politics of green deliberative theory in practice (e.g., Nordbrandt, 2020), messaging strategies for opposing genetically modified organisms (e.g., Diamond, Bernauer & Mayer, 2020), and even the link between place attachment and public opinion formation (e.g., Dowling, 2010). The breadth of such research and theorizing points to any number of ways in which the study of communication and media related to Environmental Politics might be fruitfully advanced.

To the extent the foreseeable effects of global climate change pose a significant challenge to political order on Earth, the high degree to which scholars of Environmental Politics have invested theory and research into this subject is to be expected (e.g., Faulkner, 2013). Numerous research teams have investigated relevant issues such as the framing of climate change communications (e.g., Zhou, 2016) and the role of public deliberation (e.g., Bulkeley & Betsill, 2013). And, given the highly partisan nature of reactions to the threat of global climate change, the work of Guber (2013) offers an excellent bridge to environmental communication scholarship. Her analysis of nation-wide survey data spanning three decades reveals that party affiliation is playing an increasingly significant role in regards to climate change and the mitigation thereof, but only insofar as citizens gain their knowledge from and are prompted by partisan elites via the mass media; those that become polarized in their attitudes toward the subject are the same individuals who regularly attend to increasingly virulent framing of commentators and opinion leaders with a vocal political niche.

*Environmental and Conservation Psychology.* For many outside the general field of psychology, the idea of a distinctive *environmental* focus in the discipline would likely be associated with studying relationships between cognition and human responses to, say, pollution. However, that characterization has only recently begun to supplant the manner in which environmental psychologists traditionally explored the connection between relatively molar physical settings (e.g., a cityscape) and behavior (Pol, 2006). It was not until after the advent of the modern environmental movement in the 1970s that a new crop of psychologists,

intent upon using social science to restore or preserve the Earth (e.g., Cialdini, Kallgren, & Reno, 1994; Clayton, 2012), transcended the older paradigm. More recently, we have seen the emergence of *Conservation* Psychology, bringing together researchers and practitioners interested in a more distinctly human sustenance of nature (e.g., Clayton & Meyers, 2015). As a whole, the fields of Environmental and Conservation Psychology probably represent the most expansive body of literature related to the protection of our planet found anywhere in the social sciences.

Theory and research associated with environmental communication approached via psychological factors are quite varied (for reviews, see: Bechtoldt, Götmann, Moslener, & Pauw, 2020; Klöckner, 2015; Reser & Bradley, 2020; Steg & de Groot, 2019). Scholars now examine a surfeit of subjects as diverse as cross-cultural differences (e.g., Tam & Milfont, 2020), the mediating role of emotion and moral message framing in processing environmental sustainability campaigns (e.g., Hurst & Stern, 2020; Manca, Altoè, Schultz, & Fornara1, 2020), messaging strategies to improve environmental crisis appraisal (e.g., Kwan, Naidu, & Bixter, 2019), and marketing approaches that suppress pro-environmental behaviors (Zhang, Jiang, Sun, Gu, & Jiiang, 2020), to name just a few. And, as with others across a span of disciplines, psychologists are increasingly focused on the dynamics of visual communications related to the environment (e.g., Carlson, Kaull, Steinhauer, Zigarac, & Cammarata, 2020; Oh, Sudarshan, Jin, Nah, & Yu, 2020). Clearly, topics such as these have been and continue to be of interest to many in the field of environmental communication and media studies.

Similar to the work of other contributors to this volume, a specific study regarding climate change that may capture a range of linkages between environmental communication and Environmental and Conservation Psychology is the work of Slimak and Dietz (2006). Their research surveyed both the general public and risk professionals, asking respondents to rank a wide range of potential threats to the environment and human well-being. Analysis revealed that laypersons are more concerned about low-probability, high-consequence risks (e.g., radiation exposure) while environmental experts are more concerned about situations posing long-term risks to local and global ecosystems (e.g., global warming). Ancillary analysis indicated that the most consistent predictors of the different rankings were adherence to ecological world views and altruistic orientations toward social conduct in the biosphere, far more than other sociocultural variables such as religion, partisanship, or ethnicity (cf. Dunlap & McCright, 2008; Leiserowitz, Roser-Renouf, Marion, & Maibach, 2021). Theorizing that the integration of values, beliefs, and norms differentially amplifies perceptions of risk events (Kasperson, Kasperson, Pidgeon, & Slovic, 2003), Slimak and Dietz concluded that the framing of risk analyses ought to be based upon robust public sphere deliberations. Thus, a tightly knit study in the tradition of Environmental and Conservation Psychology corroborates many of the same public engagement strategies advocated by environmental communication scholars.

*Environmental Sociology.* The sociological study of interactions between humans and the larger environment has traditionally focused upon processes related to the social construction, causes, and impacts of environmental problems as well as attempts by society to remedy such. As well, and largely because of shared disciplinary traditions (Kopnina & Shoreman-Ouimet, 2016), my review also includes the study of anthropological approaches to the environment under the aegis of Environmental Sociology. Somewhat interdisciplinary in nature, this subfield grew out of structuralist critiques of environmentalism in the late 1960s (Lockie, 2015) and now offers a coherent, group-oriented compliment to more individual-oriented approaches ensconced in fields such as Environmental and Conservation

Psychology. And, as with any mature disciplinary focus in the social sciences, the empirical foci for Environmental Sociology can be examined using varied methods highlighted in texts that range from introductory overviews (e.g., Bell & Ashwood, 2015; Townsend, 2020) to more highly focused scholarly studies dealing with issues such as climate change and environmental social justice (e.g., Barnes et al, 2013; Brechin, Fortwangler, Wilshusen, & West, 2003).

Generally interested in collective behavior, environmental sociologists have focused on a wide variety of topics including the creation of social identity (e.g., Breiger, 2019), the role of social norms in risk–information avoidance (e.g., Kahlor, Olson, Markman, & Wang, 2020), corporate framing to downplay environmental risk (e.g., Kojola & Lequieu, 2020), the role of climate change advocacy in the U.S. Congress (e.g., Guber, Bohr, & Dunlap, 2020), and the use of social media in mediating perceptions of Earth hazards (e.g., Sovacool, Xu, De Rubens, & Chen, 2020). In this vein, sociologists have also devoted sizable resources to the study of the basis for human concerns regarding the environment (for a review, see: Franzen & Vogl, 2013). And, without question, the environmental sociologist casting the largest shadow in the field must be Riley Dunlap who has spent more than three decades using survey research methods to disentangle the roots of environmental attitudes and the tension between the Dominant Social (or "Exemptionalist") Paradigm (Catton & Dunlap, 1978) and the New Environmental Paradigm (e.g., Dunlap & Van Liere, 2008). Indeed, it may be the insights and data provided by Dunlap that have had the greatest impact on the study of environmental communication beyond the corpus of historical and critical scholarship in the field.

Any significant mitigation in global climate change trends will most certainly pivot on the actions of social collectives more than those of individuals and, consequently, one would expect environmental sociologists to explore the subject in detail (e.g., Dunlap, 2013; Lane, 2013; Stoddart, Ylä-Anttila, & Tindall, 2017). A good example of this burgeoning body of research may be Smith, Anderson, and Moore's (2012) study of social resilience in the face of changing climactic conditions. Their findings demonstrated that the communal ability to withstand the impacts of climate change can be predicted by a number of communication-related variables such as the extent to which local social networks serve to dampen individual risk appraisals while, at the same time, increase the potential for information seeking behaviors. Studies such as these can be used by environmental communication and media scholars and practitioners to inform policies that both encourage adaptive behaviors as well as induce greater resistance to the looming effects of climactic change.

## Moving toward an applied integration

One of the guilty pleasures of conducting even a cursory review of the environmental social sciences such as this is the chance to see just how far scholars have come in appreciating the communicative dimensions of our collective enterprise. Taken as a whole, the seas of theory and research embodied in the appended references (as well as other contributions to this edition of the *Routledge Handbook of Environment, Communication, and Media*) demonstrate that, indeed, the field of communication studies should be increasingly drawing upon insights from other allied disciplines. What is perhaps more significant is the fact that those in a variety of fields that focus on the communicative dimensions of environmental sustainability are finding welcoming harbors in the flagship journals of disciplines not their own. As I see it, this is a great, still-in-the-making accomplishment for the Academy and, in the final section of this chapter, I want to argue that the integration of the environmental social sciences is

being led by those on the prow of attempts to navigate the dangerous shoals of our environmental seas: The scholars, agencies, and practitioners deep in the troughs of the current global maelstrom. As Zimmerer (2016) observed:

> Several of the human–environment approaches responding to current changes are termed blended studies and hybrid sciences. These knowledge systems are synthesizing information, analytics, and interpretation across multiple areas of human–environment study. Such "blended human–environment studies" are characteristic of state–of–the–art knowledge and are a response, in part, to the unprecedented social urgency and complexity of environmental issues being encountered in the Anthropocene.
>
> *(p. 1)*

A body of these attempts at integration are associated with somewhat disciplinary niches (e.g., Harnish, Hazlewood, Bedker, & Roeder, 2016; Ryan, Mellish, Le Busque, & Lichtfield, 2019) while other approaches are focused on pressing applied issues such as climate change (e.g., Brinks, Crowley, Baston, Shea, Chen, & Parris, 2019; Moon et al., 2020). Additional research teams have attempted multidisciplinary, cross-cutting integrations between the physical and social sciences aimed at establishing criteria for judging the success of applied environmental studies (e.g., Cooke et al., 2020). A well-read example of such efforts after integration is the work of Bennett and his associates' (2017a) expansion upon the role of the environmental social sciences in landscape-scale conservation work. Nonetheless, "communication," as a distinct field of study, is hardly covered in the Bennett et al. analysis. The term appears very infrequently in the article, often in the context of "science communication" or other applied realms, and is mostly viewed as a vehicle by which to share conservation social science results.

Beyond the Academy, however, the role of human interaction and social science from an interdisciplinary vantage is magnified in an emerging array of applied, *governmental* efforts to protect the environment that go well-beyond merely "conservation" or "natural resource management" *per se* (e.g., MacDonald & Soomai, 2019; Maxwell, Hubbell, & Eisenhauer, 2019). And, without question, a primary enabler behind the move to highlight the role of communication in various environmental social sciences has been the power of the internet, especially as exemplified by HDgov (https://doi.sciencebase.gov/hd/). Since 2007, HDgov has provided a web portal hosted by an inter-agency team of the United States federal government (e.g., U.S. Geological Survey, U.S. Forest Service, Department of Interior, Environmental Protection Agency, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration) in partnership with Northern Michigan University. The team is dedicated to providing a place for researchers, governmental personnel, and citizens to access environmental social science materials. The site focuses on the human dimensions of the environment. In this context, the term "human dimensions of the environment" refers to how and why people value the environment, how they want to manage themselves in relation to the environment, and how public and private decisions regarding the environment are impacted by as well as influence human conduct.

Users who access the interactive HDgov website find a comprehensive curated guide to published, proprietary, and "white paper" or case study analyses of the human dimensions of the environment spanning a broad array of issues and topics, methods, and tools for further investigation those human dimensions, and data and regulations related thereto. The project aims to increase awareness of the environmental social sciences, promote their application and integration into governmental, academic, and non-profit efforts, and empower users to
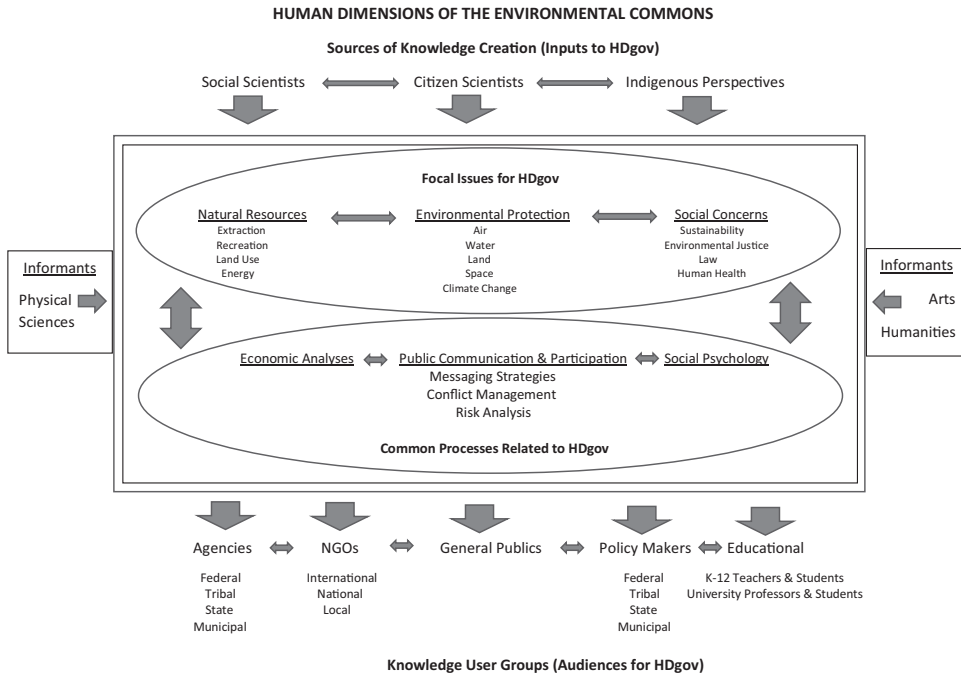
**HUMAN DIMENSIONS OF THE ENVIRONMENTAL COMMONS**

**Sources of Knowledge Creation (Inputs to HDgov)**

Social Scientists ⬅➡ Citizen Scientists ⬅➡ Indigenous Perspectives

**Focal Issues for HDgov**

<u>Natural Resources</u> ⬅➡ <u>Environmental Protection</u> ⬅➡ <u>Social Concerns</u>

| Natural Resources | Environmental Protection | Social Concerns |
|---|---|---|
| Extraction | Air | Sustainability |
| Recreation | Water | Environmental Justice |
| Land Use | Land | Law |
| Energy | Space | Human Health |
| | Climate Change | |

**Informants**

Physical Sciences

**Informants**

Arts

Humanities

<u>Economic Analyses</u> ⬅➡ <u>Public Communication & Participation</u> ⬅➡ <u>Social Psychology</u>

Messaging Strategies
Conflict Management
Risk Analysis

**Common Processes Related to HDgov**

Agencies ⬌ NGOs ⬌ General Publics ⬌ Policy Makers ⬌ Educational

| Agencies | NGOs | | Policy Makers | Educational |
|---|---|---|---|---|
| Federal | International | | Federal | K-12 Teachers & Students |
| Tribal | National | | Tribal | University Professors & Students |
| State | Local | | State | |
| Municipal | | | Municipal | |

**Knowledge User Groups (Audiences for HDgov)**

*Figure 2.1*   Knowledge User Groups (Audiences for HDgov)

collaborate in sustainable environmental decision-making policies and practices. Some of the complexity of this undertaking is represented in Figure 2.1 (arrows represent communication pathways within the model).

## In the end moving forward

As I concluded my chapter in the first edition of the *Handbook*, I argued against the continuing parochialism of the environmental social sciences wherein few scholars reference work across demonstrably allied fields of inquiry. As may be evident from the research examples used in this edition, the tendency to view scholarly puzzles in something of a trans-disciplinary vacuum is gradually dissipating. Nonetheless, those of us who study the *communicative* dimensions of the environmental social sciences should not blithely assume that scholars in other disciplines inherently recognize the interaction contexts in which beliefs and actions regarding the environment arise.

The transdisciplinary perspective-taking caveat applies to environmental communication researchers as well despite the largely integrative nature of our subject matter. Just as Latour (2005) urged social scientists to avoid trying to account for attitudes, values, and behaviors without considering the interaction context in which beliefs and actions arise, so too should we all heed the way in which the raft of environmental social studies is aesthetically and pragmatically more than the sum of its parts. Perhaps the following pages will give each of us an increased ability to conduct just such an integrative synthesis. Certainly, some do appreciate the centrality of communication systems in approaching the human dimensions of the global environmental commons (e.g., McAfee, Alleway, & Connell, 2020) but often insights of our field may not be highlighted in others' efforts, if for no other reason than our tendency

to showcase our good works primarily in venues dedicated to environmental communication and media studies *per se*. Our field has truly advanced in some amazing ways, yet I am sure we have many leagues to sail before our rich cargo of theory and research is sufficiently harbored and promoted in the marketplace of the greater environmental social sciences.

## Further reading

Bennett, N. J., Roth, R., Klain, S. C., Chan, K. M., Clark, D. A., Cullman, G., Epstein, G., Nelson, M. P., Stedman, R., Teel, T. L., & Thomas, R. E. (2017). Mainstreaming the social sciences in conservation. *Conservation Biology*, *31*(1), 56–66. Provides an illustrative example of alternate attempts to review and synthesize social science approaches to environmental communication.

Maki, A., Cohen, M. A., & Vandenbergh, M. P. (2018). Using meta-analysis in the social sciences to improve environmental policy. In W. Leal Filho, R. W. Marans, & J. Callewaert (Eds.), *Handbook of sustainability and social science research* (pp. 27–43). New York: Springer. One of the advantages of quantitative social science research is the ability to use meta-analysis to generalize findings across a range of multidisciplinary studies as exemplified by this chapter.

Maxwell, K., Hubbell, B., & Eisenhauer, E. (2019). Institutional insights on integrating social and environmental science for solutions-driven research. *Environmental Science & Policy*, *101*, 97–105. These authors argue for using social and natural science in tandem when drafting environmental policies.

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# 3

# DISCOURSE AND RHETORICAL ANALYSIS APPROACHES TO ENVIRONMENT, MEDIA, AND COMMUNICATION

*Jennifer Peeples and Mollie Murphy*

Environmental communication reflects and constructs the complex and interconnected material, social, economic, cultural, and political aspects of people's lives. Such complexity invites scholars to bring diverse frameworks to the task of analyzing how environmental communication functions. In this chapter, we narrow our focus to two common approaches to the study of environmental communication: rhetorical criticism and discourse analysis. Although it is somewhat unconventional to address these two methods in tandem, the respective foci and goals of these "sister disciplines" often overlap in complementary ways (Milstein, 2009). Further, given that there is much diversity *within* both rhetorical criticism and discourse analysis, this review emphasizes the range of options scholars have for examining the communicative dimension of one of the most pressing issues of our time: our relationship to the environment.

Rhetorical criticism has its roots in public oratory and generally involves the analysis of symbolic acts or artifacts, commonly referred to as "texts." To examine the communicative function of a given text (for instance, a speech), rhetorical critics typically turn to defined methods of critical interpretation or embrace a more hermeneutic orientation. Ultimately, this approach aims to shed light on how specific forms of communication construct and reflect aspects of the environment/environmental concerns and, in turn, influence audiences' understanding, beliefs, and actions.

Whereas rhetorical critics are centrally concerned with the social audiences of persuasive messages (Kuypers, 2016), discourse analysis is a systematic, grounded method that involves close examination of "language in use" (Gee and Handford, 2012). Rooted principally in a European tradition with its foundation in linguistics, the approach has an extensive reach across humanist, critical/cultural, and social scientific perspectives. Through a variety of approaches, discourse analysis aims to unearth the ways in which language covertly shapes thought and action.

As our chapter will show, both of these methodological approaches serve as tools for analyzing the communicative constitution of environmental issues. Through rhetorical criticism and discourse analysis of texts, scholars show how communication works to socially construct an interested, partial, and always subjective understanding of the environment.

Moreover, these methods offer opportunities to test, extend, and reassess existing theories by applying them to environmental case studies. Finally, many rhetorical critics and discourse analysts intend their research to positively influence changes in attitudes and practices affecting the environment.

This chapter proceeds in two sections. The first introduces the use of rhetorical criticism in environmental communication research and the second focuses on discourse analysis, with a nod to qualitative content analysis (QCA). We begin each section with an introduction to the method before attending to recent developments, turns, or areas of emphasis. Next, we offer case studies that serve as snapshots of environmental communication research, paying particular attention to influential work conducted within the last ten years. Within our review of these case studies, we highlight the perspectives, questions, and key insights offered by the author(s). We conclude by emphasizing similarities found between the two methods.

## *Rhetorical criticism*

### *Rhetoric*

The study of rhetoric has its roots in early Greece with the writings of Plato, Isocrates, and Aristotle. As Kennedy explains in his introduction to Aristotle's *On Rhetoric*:

> There were no professional lawyers in Greece, and if citizens needed to seek redress in the courts for some wrong or if they were summoned to the court as defendants, they were expected in most instances to speak on their own behalf.
>
> *(2007: ix)*

This led early studies of rhetoric to focus primarily on its pragmatic function. Under the direction of sophists, privileged citizens of Greece learned to master the art of public speaking through the rhetorical tools of persuasion, such as using logical argument, references to the speaker's character, and appeals to the audiences' emotions (Kennedy, 2007: ix).

Though contemporary studies of rhetoric continue to focus on the audience, scholarship has shifted to focus more heavily on rhetoric's constitutive function through the examination of diverse artifacts well beyond public speeches. "Constitutive function" refers to rhetoric's role in (re)constructing meaning. As Pezzullo and Cox explain, "Constitutive communication invites a particular perspective, evokes certain beliefs and feelings (and not others), fosters particular ways of relating to others, and thus creates palpable feelings that may move us" (2018: 13). The role of rhetoric in emphasizing some aspects of an issue while hiding others is captured in Kenneth Burke's (1966) notion of "terministic screens," a term that points to the nature of communication as simultaneously reflecting, selecting, and deflecting particular aspects of reality. It is the goal of rhetorical critics to investigate communicative "screens" to explain and clarify rhetoric's constitutive force used to craft meaning and, thus, audience perception. While continuing to recognize the power of symbols, recent environmental work has begun to problematize and reconceptualize the relationship between material reality and its symbolic construction, showing the dynamic, interdependent, and dialogic association between matter and symbols (McGreavy, Wells, McHendry, and Senda-Cook, 2018).

## *Critical approaches*

Broadly considered, rhetorical criticism involves the systematic process of analyzing and assessing communicative messages directed toward a social audience (Kuypers, 2016: 21). Scholars of environmental rhetoric examine a wide variety of artifacts that convey some kind of environmental message. Artifacts—or texts—include (but are not limited to) speeches, social media, films and documentaries, websites, writings, photographs, news media, and government and corporate documents. To analyze the constitutive (and pragmatic) functions of such texts, rhetorical scholars typically turn to one or more traditional methodologies including metacritical, close textual analysis, dramatistic, narrative, metaphoric, genre, critical rhetoric, social movement, mythic, and publics (Pezzullo, 2016). Other methods adapted to study environmental communication texts include ecological, material, and in situ methods. These approaches frequently overlap and are almost always selected based on the text's prominent features. The specificities of the context and text then influence the method used in the analysis, as opposed to having the method dictate the choice of text (pejoratively referred to as "cookie cutter" research). For these reasons, Kuypers argues that rhetorical criticism is more aptly understood as an art rather than a science.

Recently, rhetorical scholars of environmental communication have pressed for more creativity and inclusivity in methodological approaches (Hess, Senda-Cook, Middleton, and Endres, 2020; Pezzullo and de Onís, 2018). Turning to the context of the climate crisis, Pezzullo and de Onís (2018) argue for the value of rhetorical field research. Given the state of precarity caused by anthropogenic climate change, they urge rhetorical scholars to take on a more applied, activist role in their research, which necessitates focusing more heavily on current issues. They explain, "Field methods offer an approach to rhetorical studies that acknowledges and reflects the interconnection between researchers, what/who we study, and the production of knowledge" (Pezzullo and de Onís, 2018: 116). By engaging in more embodied, active research, scholars can work with and support activist communities in effecting change.

Recent scholarship has also pushed rhetorical critics of environmental communication to make greater use of intersectional research methods. For example, Singer argues for "intersectional ecofeminist communication approaches" to research (2020: 269). According to Singer, recognizing the interconnectedness of oppressions including sexism, racism, colonialism, and environmental degradation is essential to promoting both "just inclusivity and post-anthropocentric coexistence" (2020: 272). Engaged, intersectional research can thus better enable scholars to work towards what Agyeman (2008) has described as "just" sustainability.

In the following section, we provide examples of analyses that use rhetorical criticism to research environmental communication, paying special attention to the research questions the authors are addressing and how their selected texts and methodologies guide their analyses.

## *Rhetorical criticism in practice*

One of the first examples of environmental rhetorical criticism in the U.S. was Oravec's (1981) study of the persuasive strategies used by preservationist John Muir in his natural history essays. Oravec begins by asking how a literary writer persuaded legislators who had never set foot in the West to vote to set aside Yosemite Valley for preservation. Through analysis of Muir's essays written in the years surrounding the campaign for Yosemite as a

National Park, she finds two key rhetorical strategies: Muir incorporated elements of the sublime response in his writing, a religious feeling akin to seeing the face of God, and he created a literary persona to "identify the readers' more or less passive literary experience with the activity of the figure," in many cases that of a "true mountaineer" (1981: 248). These strategies turned the audience from inert readers to dynamic participants who could feel the overwhelming awe and wonder that comes when one is in physical contact with the natural world. Oravec's explanation of the sublime response allows her to investigate and explain the rhetorical strategies used by Muir as well as provide insights into the reasons for his rhetoric's success in changing public and political opinion.

Whereas Oravec uses rhetorical criticism to better understand the persuasive potency of one rhetor, Sowards (2012) examines a specific rhetorical context: ecotourism. Taking an ethnographic field research approach to analysis, she assesses how tropes such as the sublime figure into the rhetoric of ecotourism. Ecotourism is a complex engagement with nature that supports environmental appreciation and awareness while simultaneously leading to increased environmental disruption and degradation. Given these tensions as well as the communicative, embodied nature of ecotourism, Sowards turns to rhetorical criticism to help further the goal of "improving conservation efforts and relationships among ecotourists, local communities, and others involved in the ecotourism industry" (2012: 176). She utilizes field research of her own experience with ecotourism to assess the role of advertisements, magazines, documentaries, and guidebooks in shaping expectations, experiences, and memories of ecotourism, particularly her own. She argues that three rhetorical themes—sublime, exotic, and dangerous adventure—figure prominently in ecotourist literature. Sowards concludes that attention to the role of rhetoric in shaping expectations, experience, and remembrance can help resolve some of the tensions of ecotourism. She states that "understanding how rhetorical practices shape and influence tourists' own descriptions, behaviors, experiences, expectations, and memories may help foster consciousness of who we are and our impact in the world" (Sowards, 2012: 188). Through rhetorical field research, Sowards shows how tropes such as the sublime shape both expectations and (remembered) experience.

Scholars of environmental communication have also used field research to engage in critical analysis of corporate rhetoric. For example, Paliewicz (2018) used participatory critical research to analyze how a specific mining company—Rio Tinto Kennecott (RTK)—responds to environmental concerns by promoting industrial, neoliberal values. Rio Tinto owns the biggest open mine pit in the world: the Bingham Canyon Mine, located just outside of Salt Lake City, Utah. Paliewicz (2018) studied Rio Tinto's rhetoric "*in situ*" by visiting three locations with ties to RTK and its efforts to forward an image of environmental consciousness: The Natural History Museum of Utah, the Rio Tinto soccer stadium, and Daybreak, a community located on a reclaimed mining site. Through extensive fieldwork and analysis, Paliewicz argues that Rio Tinto reifies the dominant narrative of the industry—and the mine—as necessary to the local community and economy. As Paliewicz shows, corporate rhetoric is "located in places and spaces that produce structures of feelings or (affects) about the environment" (2018: 747). Through participatory critical research, Paliewicz's work illuminates the links between the symbolic construction of industry, community, and the materiality of the physical locations.

Beyond the increased emphasis on field research methods, contemporary scholars of environmental rhetoric have also continued to press for analysis of visual forms of communication. Following DeLuca's (1999) earlier work on image events, recent scholarship has attended to the ways in which non-traditional artifacts, such as images and tours, shape public understanding of environmental issues (Bowers, 2013; Peeples, 2011, 2013; Pezzullo, 2007).

For example, Barnett (2015) examines what he terms "toxic portraits," or photographs of individuals living in contaminated places. Barnett explains the multiple issues of visibility posed by toxic contamination: first, toxins are physically invisible; second, toxin-induced illness can take years to manifest, making toxins' effects invisible; third, "the pain and suffering associated with toxins evade both verbal and visual representation"; and fourth, toxins are disproportionately allocated to "politically invisible communities," such as those inhabited predominately by poor people and people of color (2015: 406). When accompanied by textual narratives, toxic portraits challenge these multiple invisibilities by linking "human bodies, pollution, and the pain and suffering that frequently result from their combination" (Barnett, 2015: 421). Ultimately, toxic portraits make these connections visible and thus more difficult for viewers to ignore, which in turn "open[s] a space for viewers to imagine otherwise, to imagine themselves responding to the precariousness depicted in these portraits" (Barnett, 2015: 422). Barnett's work highlights the utility of analyzing images and their accompanying textual narratives, which together shape audience perceptions of links between toxic contamination and racism.

Like Barnett (2015), de Onís (2012) employs rhetorical criticism to explore the ways in which issues of social and environmental justice are rhetorically and materially linked. Through analysis of the Asian Communities for Reproductive Justice's (ACRJ) 2009 publication, "Looking Both Ways: Women's Lives at the Intersections of Climate Justice and Reproductive Justice," de Onís (2012) asks critics to consider how rhetoric shapes epistemological orientations toward intersecting issues of social justice. She notes that both the climate and reproductive justice movements place "emphasis on the human rights challenges confronting marginalized communities" (2012: 309), yet few scholars have examined the significant overlap between these movements. Through the metaphor of "looking both ways," ACRJ invites climate and reproductive justice activists to consider intersections between these two areas in several contexts including "sexual assaults during and after climate change disasters; legal threats of coercive sterilization following these events; and effects of hazardous chemical production and exposure in the electronics and nail salon industries" (de Onís, 2012: 315). de Onís argues that the metaphor has both advantages and limitations in its ability to promote intersectional understandings of these social injustices. She states, "while the trope uncovers important, interconnected issues impacting both causes, it also has the potential to limit consideration of other relevant social movements" (2012: 310). It also has the potential to mask significant issues not situated at the crossroads of these two movements, such as the impact of rising sea levels on indigenous communities. Ultimately, de Onís's work illustrates the utility of rhetorical criticism for promoting intersectional understandings of environmental injustices.

While rhetorical criticism can enrich understandings of a multitude of environmental issues, the next study shows how a particular rhetorical construct, the apocalypse, is utilized to varying effects in different environmental contexts. Peeples, Bsumek, Schwarze, and Schneider (2014) turn to industry rhetoric to consider how apocalyptic narratives function in different contexts. They explain how apocalyptic rhetoric is often associated narrowly with environmentalism, where it is criticized as overly alarmist and counterproductive to inciting action. This association simultaneously "mark[s] environmentalism as radical, outside the mainstream, and unreasonable" at the same time that it overshadows industry use of apocalyptic rhetoric (2014: 228). Accordingly, Peeples et al. introduce the concept of "industrial apocalyptic" to explain the common practice wherein fossil fuel industry representatives and supporters "constitute the imminent demise of a particular industry or a broader economic system for the purpose of influencing public opinion and public policy" (2014: 229). They

argue that industry's apocalyptic rhetoric works to counter environmentalists' calls for rapid change in the face of ecological disaster at the same time that it depicts industry's status quo arguments as commonsense. Peeples et al. (2014) conclude that "industrial apocalyptic marks key moments of the ideological suturing of neoliberalism's contradictions," revealing weak places in the fossil fuel industry's arguments that can be challenged by industry opponents (247). Their study illustrates the benefits of critiquing both environmental artifacts and rhetorical constructs.

As evidenced through these examples of rhetorical criticism, the method has the flexibility to allow for diverse approaches to analyzing environmental messages as they occur in differing contexts. While rhetorical concepts can shed light on how environmental communication functions, environmental communication can also provide useful contexts for strengthening scholarly understanding of rhetoric itself. Human understanding of environmental issues and struggles are inextricably linked to the symbols through which such issues are communicated, and a rhetorical approach can help unpack this relationship toward the goal of improving both theory and practice.

## Discourse analysis

### *Discourse*

James Paul Gee, in his foundational work in discourse analysis, differentiates between discourse (lower-case) and Discourse (upper-case). Lower-case discourse refers to language-in-use—"connected stretches of language that make sense, like conversations, stories, reports, arguments, essays" (Gee, 1990: 142). Discourses (with a capital D) are symbolic guides that attempt to simplify and explain the world around us; they are worldviews constructed through a "set of meanings, metaphors, representations, images, stories, statements, and so on that in some way together produce a particular version of events" (Gee, 1990: 201). As scripts, they provide order and insight for the vast amounts of textual and visual information that perpetually engage us. A person who subscribes to a particular ideology is able to take fragments of information and create meaning through their placement within the discourse's narrative (Dryzek, 1997: 9). According to Hajer, discourses can be thereby be defined as "an ensemble of ideas, concepts, and categorizations that is produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities" (as quoted in Leipold, Feindt, Winkel, and Keller, 2019: 447). As discourses manifest in symbols, careful analysis of their use is essential for unpacking and revealing the powerful and at times elusive constructs that underlie and motivate human environmental thought and action.

### *Method*

As a method, traditional discourse analysis has been defined as the "study of language in use" (Gee and Handford, 2012: 1). While maintaining a focus on discourse, Leipold, Feindt, Winkel and Keller (2019) find that research within environmental communication examines "social cultural meaning structures" more often than language in and of itself. Both language and meaning structures are examined primarily through the exploration of existing texts, speech acts, or other symbolic actions.

Combining discourse analysis's roots in linguistics, philosophy, and sociology, a variety of approaches are used to examine the socially constructed meanings and relationships

found in environmental communication including: Critical Discourse Analysis, Multi-modal Discourse Analysis, Cultural Discourse Analysis, a Discourse-Historical Approach, Discourse Theory, Narrative Analysis, Argumentative Discourse Analysis, Discourse-political analysis, and Sociology of Knowledge Approach to Discourse (see Carvalho: 2017 and Leipold, Feindt, Winkel, and Keller: 2019). These approaches are "based on the assumption that discourses enable and constrain how political entities and societies understand and act on certain social or physical phenomena" (Leipold, Feindt, Winkel, and Keller, 2019: 447)

Providing another means of organizing the method, Gee and Handford (2012) divide discourse analysis approaches into four categories. The first continues the close association with linguistics, with a particular emphasis on grammar and structure. The second looks at themes or images within an oral or written text (a multi-modal approach), with the third focusing on the description and explanation of discourse's function. The fourth type, often called Critical Discourse Analysis (CDA), is "interested in tying language to politically, socially, or culturally contentious issues and in intervening in these issues in some way" (Gee and Handford, 2012: 5).

According to Stamou and Paraskevopoulos (2004), CDA works to rectify the shortcomings of both linguists and social approaches. They argue that linguistic discourse analysis, with its focus on the linguistic text, "has failed to account for its social nature" (2004: 107). Social discourse analysis, on the other hand, has "neglected the role of language" in shaping symbolically constructed reality (2004: 107). CDA, therefore, "allows for a richer examination of the resource used in any type of text for producing meaning. It … puts a stronger emphasis on language and on the relation between discourse and particular social, political, and cultural contexts" (Carvalho, 2007: 227). Highlighting the underlying political impetus of CDA, Leipold, Feindt, Winkel, and Keller maintain that

> These 'critical discourse analysis' approaches are motivated by an ambition to unmask hidden (e.g. capitalist, right-wing) ideological agendas as drivers of political text and talk, to advance democratic stakeholder participation in decision making and to critically analyze discriminatory (e.g. racist, antisemitic) language use, especially in the public sphere or by political actors.
>
> *(2019: 448)*

Regardless of the approach taken, discourse analysis seeks to unearth the discursive logic often hidden within a text, take it apart, show the reader how it works, and then put it back together again in a way that makes what was previously invisible, visible (Carbaugh and Cerulli, 2013: 11). As illustrated in the following examples, the reach of discourse analysis approaches allows for a multiplicity of perspectives and insights when analyzing environmental communication.

### *Discourse analysis in practice*

Scholars use critical discourse analysis to engage with a wide variety of environmental issues including *pollution* (Jjuuko and Prinsloo, 2014); *energy production and extraction* (Doyle, 2011; Gunster and Saurette, 2014; Sikka, 2012); *climate change* (Carvalho, 2005; Olausson, 2009); *corporate social responsibility* (Jaworska and Nanda, 2018), *ecotourism* (Stamou, Lefkaditou, Schizas, and Stamou, 2009); *advertising* (Atkinson, 2014); and *discourses of sustainability* (de Burgh-Woodman and King, 2013; Yacoumis, 2018).

A compelling example of a textual case study using discourse analysis is Maeseele, Raeijmaekers, Van der Steen, Reul, and Paulussen's (2017) analysis of a controversial field test of genetically modified potatoes. The researchers examine the newspaper coverage of a direct action protest in which several hundred activists attempted to disrupt the potato study in Flanders, Belgium by accessing the field, pulling up plants, and replacing them with organic varieties. Scientists and sympathizers launched a counter-protest under the banner, "Save our Science." In their introduction to the article, Maeseele et al. ask in what ways the news media's reporting of the controversy "contribute to processes of depoliticization and, resultantly, impede a democratic debate on the issues at stake" (2017: 167). To address the question, the authors compare coverage of the event found in two generalists, elite newspapers (De Standaard and De Morgen) to the alternative online news site DeWereldMorgen. While they document commercial media using more depoliticizing discourses than the alternative media, they note an exception. In its coverage of the field test controversy, the De Morgen questions the intertwining of business and universities in ways that open debate over that particular issue. This leads the authors to conclude that while commercial media's coverage largely foreclosed broad democratic debate on socio-environmental issues, the "different shades" of depoliticization warrant a nuanced examination of environmental coverage instead of a broad condemnation of commercial media as post-political and depoliticizing.

Other discourse analysts take a multimodal approach, which engages both language and visual modes of communication (Budinsky and Bryant, 2013; Hansen and Machin, 2008; Høeg and Tulloch, 2019; Maier, 2011; Sedlaczek, 2017; Takach, 2013). Adding to the scholarly literature on fracking, Chen and Gunster (2016) critique British Columbia's (BC's) efforts to legitimize hydraulic fracturing and the export of Liquified Natural Gas (LNG) by examining the texts and images from the "LNG in BC" website. They find two primary strategies of legitimization. First, the site highlights the economic benefits of the project to the region; second, the site visually and discursively emphasizes the values of natural gas by "contrasting its 'clean' appearance (as a colorless and odorless gas) with the material density and 'toxic sensuality' of other 'dirty' fossil fuels (such as coal, oil and bitumen)" (2016: 305). They conclude that the faulty comparison of the "clean" fuel (ethereal carbon) to the "dirty" fuels creates the appearance of a moral imperative in support of natural gas. In addition, the LNG website constructs a hierarchy of knowledge and risk, utilizing a technical-regulatory approach that positions "the provincial government and industry proponents as the principal actors … [and] the citizens and local communities [as participants] in an entrepreneurial discourse" (2016: 315). In Chen and Gunster's conclusion, they tie the textual and visual discourses established in the "LNG to BC" website to the broad social processes of neoliberalization, globalization, and neocolonialism.

Taking the third approach to discourse analysis, scholars use the method to examine texts obtained through interviews, focus groups, and/or participants observations (for example Kenis and Mathijs, 2013). Carbaugh and Cerulli (2013) employ a cultural discourse analysis, in which they examine discourses collected through ethnographic interviews. The authors describe the goal of their work as exploring the "human relations with nature, while embracing cultural and linguistic variability in these processes" (2013: 8). They accomplish this through their study of discourses of dwelling or "place" through the case study of nontraditional hunters'—those who began hunting as adults—descriptions of New England hunting grounds.

For Carbaugh and Cerulli, communication is "doubly placed," meaning that communication happens in and is affected by place and that communication is used to construct people's understanding of it. They explore the cultural knowledge of place created through the

interaction of five "discursive hubs" all made explicit in people's communication practices: identity, action, feeling, relating, and dwelling. As with the analyses discussed previously, Carbaugh and Cerulli attempt to understand and interpret the underlying discourses that influence human's attitudes and actions. In this case, the authors are focusing on the "cultural logic in the discourse" and making its "radiants of belief and of value, more readily visible for consideration" (2013: 16). The approach outlined by Carbaugh and Cerulli differs most greatly from rhetorical criticism and the other examples of discourse analysis in that the authors focus on interviews and critical evaluation to reveal the cultural codes located within an individual's language.

In our final example of discourse analysis in environmental communication, Metz (2019) examines a 2013 protest staged in response to the planned destruction of the Taksim Gezi Park in Istanbul, Turkey. The local protest exploded into a national movement with 4 million people engaging in over 5,000 protests. The police violence, which began with police escorting bulldozers to uproot the park's trees, escalated over the four months of protests and resulted in 8,000 injuries and 11 deaths. In an attempt to reveal the hegemonic struggles between the repressive, pro-development government and protesters, Metz conducted 25 interviews and employed LaClauian discourse theory to examine the relationship between the Gezi protest's dominant and marginalized discourses.

For the discourse analysis section of her research project, Metz examines the demands of the Gezi protesters by querying how these challenges to the Justice and Development Party (JDP) government were able to form an equivalential chain resulting in a constellation of environmental, political, economic and social issues that united as the "Gezi Protests." The author finds that the protesters were responding to two powerful forces: the pressures of globalism and neoliberalism and the authoritarian regime of the JDP leader, Tayyip Erdoğan. The forces, Metz argues, resulted in the repressive, hyper-developmentalism found in Turkey. Metz's interviews reveal Gezi Park to be an empty signifier that was quickly filled with the grievances that had been building for almost 20 years. This culminated in a broad coalition whose concerns could be found articulated in a protest banner that read, "Hands off my tree/street/square/drink/uterus/sexual identity/hair/meal/sea/dress/river/number of kids/bread/home …" (2019: 602). Metz notes, "A chain of equivalence emerged between the demands for ecologically sound policies and democratisation, which included 'nature' as a political subject" (2019: 605). Metz's work speaks to calls from discourse analysis scholars to find innovative sites of politics. Metz responds, "Gezi Park was such a new site and the protests transformed the space of representation, opening up new participatory domains, and creating a pluralist language" resulting in a discursive reconstruction of that political space (2019: 605).

In her chapter on "Climate change and the social–ecological crisis," Carvalho concludes with a call to expand the work on discourse analysis to address climate change (2017). In the previous examples and in this final note on discourse analysis, we represent, amplify, and extend that call more broadly to research in environmental communication. Discourse analysis can continue to expand its texts for analysis to include non-traditional sources (e.g. religious documents), social media, digital communication, and texts from non-Western countries. Leipold, Feindt, Winkel, and Keller (2019) advocate scholars extend their analyses from existing documents and case studies (which are still the primary texts for discourse analysis) to in-depth interviews, focus groups, and observations, as seen in Metz's work. Carvalho encourages research that examines justice, political power, technologies (especially those lauded technological "fixes"), environmental policies, nature, lifestyle, and money. She concludes,

> A discourse-political analysis will be concerned with the choices and non-choices, as well as the rights and duties, of countries, corporations, social classes and individuals … [which should include] under-studied (from a discourse-analytical perspective, at least) groups and social movements.
>
> *(2017: 496)*

We share Carvalho's call to explore alternative environmental possibilities imagined by social movements, rather than the continuous and at times disheartening exploration of what currently exists.

## *Qualitative content analysis*

While Content Analysis (CA) is primarily a quantitative method (Hansen and Machin, 2019), a number of articles found while researching environmental communication literature for this chapter revealed work that wed traditional CA work with qualitative textual analysis. QCA puts a greater emphasis on the "context in which the data were created, to identify themes and extract meaningful interpretations" (Roller and Lavrakas, 2015: 230). In environmental communication, QCA appears to differ from discourse analysis in its integration of concepts and theories found in media studies, including *framing* (Matz and Renfrew, 2015; Maynard, 2018; McGaurr, Tranter, and Lester, 2015), *agenda setting*, and explorations of the quality and quantity of *news coverage* (Chand, 2017; Holden and Ragusa, 2007; Laksa, 2014; Tilt and Xiao, 2010). That said, scholars using a QDA approach consistently drew from both discourse analysis and content analysis methodologies, making a strict differentiation difficult to establish.

## Conclusion

While pulling from two different historical, disciplinary, and geographic wells, in practice there is a great deal of overlap between rhetorical criticism and discourse analysis. Both methods involve exploration of the use of symbols within texts, and both aid scholars in explaining how those symbols function within a particular context that shapes and is shaped by larger cultural, political, economic, and/or social systems at play. Ultimately, through careful analysis of communication in specific case studies, rhetorical critics and discourse analysts contribute to scholarly and public understandings of the ways in which communication constitutes understanding and influences action. Because these methods are not required to limit variables and replicate findings, they are well suited to investigate the large, complex, and often messy relationship between the symbolic and the material environment.

Finally, rhetorical criticism and discourse analyses affirm notions of environmental communication as simultaneously a crisis and care discipline (Cox, 2007; Endres, 2020; Pezzullo and Cox, 2018). Understanding environmental communication as a crisis discipline emphasizes the duty of researchers to think beyond contributions to the academic literature by contextualizing their work within "the wider struggles of which research is a part" (Pezzullo and Cox, 2018: 17). At the same time, environmental communication researchers have an ethical duty to think beyond avoiding crisis. Through the approaches used in rhetorical criticism and discourse analysis research, scholars must also strive to "*honor* the people, places, and nonhuman species with which we share our world" (Pezzullo and Cox, 2018: 17). The multiplicity of approaches and flexibility inherent in the analyses of text allows scholars to engage the various pragmatic and constitutive functions of environmental messages while meeting the higher goals of the environmental communication discipline.

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# 4

# ENVIRONMENTAL JUSTICE

## The third pillar of environmental communication research

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### Environmental justice: the third pillar of environmental communication research

We write from the Salt Lake Valley in what is now called Utah, a name derived from the Ute people who lived here before European contact and continue to live here. Utah is the homeland of Shoshone, Paiute, Goshute, and Ute Indigenous peoples and continues to be a gathering place for Indigenous peoples. We open our chapter about environmental justice (EJ) this way to recognize the devastation that settler colonialism has brought to Indigenous land, lifeways, and relationality with more than humans is an environmental injustice (Whyte, 2018).

EJ is both a set of social movements and a program of research that seek to support and realize distributive, procedural, and recognition forms of justice, which include issues of equitable access to environmental decision-making, distribution of environmental benefits and harms, and respect and recognition for non-dominant environmental worldviews. Environmental injustices can take many forms linked to systems of power and oppression—including environmental racism, environmental colonialism, and environmental classism—but they are tied together in the painful truth that environmental benefits and burdens are not equitable.

While there has been a consistent stream of EJ research and praxis within environmental communication and media research (hereafter EC), it is by no means mainstream. Building from Cox's (2007) articulation of EC as a crisis discipline, and Pezzullo's (2017; Pezzullo & Cox, 2017) expansion to EC as a care discipline, we highlight the importance of justice as a key consideration for all EC research. We expand upon Raphael's (2019) urging for "environmental communication scholars to pay greater attention to environmental justice" by arguing that justice is an indispensable third plank of the ethical foundations of EC (p. 1088). This move highlights the foundations of justice already built into the composition of EC as a crisis/care discipline, but also posits that it is essential for planetary survival that justice is explicitly centered in EC's attempts to "enhance the ability of society to respond appropriately to environmental signals" (Cox, 2007, p. 15).

In 2005, J. Robert Cox gave a keynote address at the Conference on Communication and the Environment (COCE), which he later expanded into an article for the inaugural edition

of the *Environmental Communication* journal. Cox argued that EC scholars ought to conceptualize EC as a crisis discipline, analogous to conservation biology, with an ethical duty to attempt to ameliorate the many contemporary environmental and ecological crises (Cox, 2007). The essay is neither uncontroversial nor universally accepted, but nonetheless opens a foundational conversation about the purpose of EC research. Pezzullo (2017) offers that EC is also a care discipline, articulating a "dynamic and intertwined dialectic" relationship between crisis and care to open the possibilities for EC research (p. 11). She writes: "This means we not only have a duty to prevent harm, but also a duty to honor the people, places, and nonhuman species with which we share our world" (p. 11). Raphael (2019) further suggests that EC shows care "by building on existing examples of engaged communication scholarship on EJ" (p. 1102). In addition to crisis and care, we argue that justice is another important driver for EC research. While justice is implicit in the conceptualizations of crisis and care, we contend that it be made explicit by adopting an intersecting crisis, care, and justice frame for the discipline.

We begin this chapter by defining EJ and its origins. Next, we offer a review of EJ research within EC and lay out a series of future directions for EJ-centered EC research. The chapter concludes by arguing that to truly center EJ in EC involves not only changes to our research programs but also to our disciplinary practices.

## Environmental (in)justice

EJ scholarship emerged as a branch of broader EJ activism, which itself rose out of broader civil rights, Indigenous, labor, and anti-toxics movements (Cole & Foster, 2001). The beginning of the EJ movement is popularly traced to Warren County, North Carolina, which gained national attention in 1982 when residents challenged the state's decision to establish a hazardous waste dump in their community (Pezzullo, 2001). However, some trace the roots to earlier civil rights struggles, particularly the Memphis sanitation workers' strike and the United Farm Workers' movement, which illuminated environmental racism (Puglisi, 2018; Zimring, 2015). As the movement developed, activists challenged the distributive injustices of environmental degradation and the overwhelming whiteness of the mainstream environmentalist movement (Sandler & Pezzullo, 2007). Activists in the 1990s called for attention to how environmental injustices are byproducts of larger systems of racist, sexist, and classist oppression (Bullard, 2005).

At its core, EJ is an approach that "holds that environmental burdens and benefits should be shared equally by all people" (Ammons & Roy, 2015, p. 1). EJ activists' calls for sustained attention to the relationship between environmental harm and social inequality have been taken up across the academy. One way of mapping the contours of EJ is to address a range of environmental topics, such as climate justice (Pezzullo, 2013), energy justice (de Onís, 2018b; Schneider et al., 2016), food justice (Gordon & Hunt, 2019; Zoller et al., 2020), and toxic justice (Pezzullo, 2007). EJ might also be categorized according to particular systems of oppression, focusing on the disproportional effects of environmental harm on BIPOC communities (Endres, 2009a; Sowards, 2012), women (de Onís, 2012; Murphy, 2017; Pezzullo, 2003b), low-income and homeless communities (McGreavy et al., 2020), and rural communities (Pellow, 2016). EJ can also be conceptualized through spatial scales. Environmental injustices are both local (e.g., lack of clean drinking water, poor air quality, and exposure to toxins) and global (e.g., the climate crisis and consumption in the Global North contributing to waste disposal in the Global South) (Ammons & Roy, 2015). Temporality is another factor in environmental injustices, such as the importance of "deep time" and "slow violence" in

environmental harm (Nixon, 2011). Finally, environmental (in)justice works at the intersection of symbolic and material practices. Environmental injustices have material embodied and emplaced consequences for people, more-than-human beings, and lands—such as toxicity leading to ecological and human health harms—but they are also justified and defended through communication.

This chapter is organized along three facets: procedural, distributive, and recognition justice (Martin, 2013). Procedural justice refers to how regulatory and participatory processes that contribute to EJ outcomes are structured to include or exclude particular concerns, amplify or silence certain voices, and create or deny opportunities for participation. Distributive justice attends more closely to environmental outcomes, emphasizing the disproportionate distribution of environmental harms in marginalized communities and benefits in more privileged communities. Recognition justice insists on the necessity of centering the cultures, knowledges, and values of communities affected by environmental decisions (Whyte, 2011). While there are significant areas of overlap between these three facets, they provide a useful analytic for discerning the primary foci of (in)justice in particular struggles.

## Environmental justice research in EC

We locate one opening for sustained engagement with EJ in communication in Pezzullo's (2001) essay, "Performing Critical Interruptions: Stories, Rhetorical Invention, and the Environmental Justice Movement," which takes up Depoe's (1997) call to include more research about the EJ movement in EC's research agenda. Although some previous research engaged with concepts of justice or environmental campaigns sustained by Black, Indigenous, and People of Color (BIPOC) communities (Depoe, 1997; Muir, 1997; Ross, 1996), Pezzullo's essay and subsequent research represent a turn toward deeper engagement with the EJ movement and scholarship on their own terms. Pezzullo's essay not only theorizes "critical interruptions" as a rhetoric of invention within EJ movements, but also performs a critical interruption into EC research, challenging "taken-for-granted narratives and practices" within a field that still has not fully realized the value of EJ movements and research (p. 18). Pezzullo's (2001, 2003a, 2003b, 2004, 2007) long-term ethnographic participant observation with EJ activists is demonstrated in a ground-breaking research program dedicated to understanding the performative, rhetorical, and cultural practices of the EJ movement's challenge to mainstream environmentalism. While we highlight Pezzullo as a key figure in advancing EJ research within EC, she is joined by other early researchers, such as Peeples' (2003) analysis of place and identity in a community-level conflict over trash in Los Angeles, Cox's (1999) theorization of the indecorous voice of EJ activists within participatory processes, and Burch and Harry's (2004) examination of California newspaper coverage of pesticides and farm workers. Since these beginnings in the early 2000s, EC has seen a slow and steady increase in EJ scholarship. Yet, Raphael (2109) cites that only 7.8% of articles in *Environmental Communication*—the flagship journal for the field—focused on environmental and climate justice and that a 2015 forum in *Environmental Communication* written by leading scholars made no mention of EJ.

## Themes in environmental justice communication

In this section, we consider the state of EJ scholarship across procedural, distributive, and recognition (in)justice. We conducted a literature review by searching past issues of the

*Environmental Communication* journal, EC books and edited volumes, and academic databases using communication and EJ keywords. This review provides our best effort at conveying the state of EJ research in EC.

## *Procedural justice*

Much EC research on procedural EJ is linked with scholarship on participation in environmental decision-making (Depoe et al., 2004; Hunt, Walker, et al., 2019). This research assumes that those affected by environmental decisions—particularly those negatively affected—ought to have a meaningful role in decision-making processes. Environmental decision-making research has demonstrated flaws in extant models of decision-making, such as public hearings and comment periods, that often use a decide–announce–defend (DAD) format (Hendry, 2004). Cox (1999), for example, argues marginalized voices are dismissed as "indecorous" as a way of justifying their exclusion from decision-making processes. Endres' (2009a) focus on Western Shoshone and Southern Paiute involvement in nuclear waste siting highlights how Indigenous people and governments are rhetorically excluded from the official participation process. Likewise, Johnson (2019a) notes that extant regulatory frameworks are insufficient to promote justice for Indigenous people and nations and that they may in fact encourage decision-makers to make unjust siting decisions. Cox (2006) contends that NAFTA and other neoliberal policies undermine meaningful participation in decision-making processes. These studies question whether official and institutionalized models of participation have the capacity for procedural justice.

Participation in environmental decision-making research also seeks to develop more just models to replace institutionalized DAD models (Daniels & Walker, 2001; Senecah, 2004). Yet, few of the models are specifically designed to address environmental (in)justice. More often, scholars argue to broaden the definition of participation to include modes of action undertaken by EJ activist groups (Delicath, 2004; Pezzullo, 2004, 2007), participatory media as a way to access decision-making spaces (Harris, 2018), and prioritizing local control over energy systems in the transition away from fossil fuels (Fairchild & Weinrub, 2017; Feldpausch-Parker et al., 2019). Others demonstrate the ways that EJ groups use subversion within formal institutionalized processes to meet their own needs. Hunt et al. (2019), for example, expand on Cox's concept of indecorous voice to show how it can be used tactically by participants to expose the radical potential of public hearings as spaces for growing movements. Finally, researchers advocate for community-based, participatory, or engaged research practices as a way to address procedural injustices and use collaboration to promote EJ as a goal and process (Chen et al., 2012; Raphael, 2019).

Beyond participation in environmental decision-making research, EJ scholars also use organizational communication as a way to attend to procedural justice. This is not to say that organizational communication scholars do not attend to EJ in environmental decision-making (e.g., Mesmer et al., 2020; Middlemiss, 2010). Part of this body of literature is concerned with how social movements disrupt hegemonic orders that sow environmental injustice. Ganesh, Zoller, and Cheney (2005), for instance, center collective "transformative resistance"—as opposed to individual resistance—to study globalization from below (p. 177). Ganesh and Zoller (2012) posit a shift from the traditional conception of dialogue—that privileges consensus over activism—to a multivocal conception that better attends to participation via activism. Other authors examine more discrete organizations like religious environmental groups (Middlemiss, 2010) and universities (Pavlich & Rose, 2010) to identify avenues for participation in efforts to promote EJ.

## *Distributive justice*

In this section, we focus on the distribution of environmental harms and benefits across a range of specific embodied and emplaced struggles for EJ. While we are attentive to a variety of local to international scales of distribution, we found that most of the research articulated itself within scholarly conversations about similar environmental issues as opposed to spatial or governmental scales. We begin with the broad categories of air, water, and land—a typical way of categorizing our planet's major ecological systems—followed by more specific categories of environmental hazards.

**Air.** Air is ubiquitous and key to sustaining life on the planet. Yet, half of the world's population are exposed to increasing levels of air pollution (Shaddick et al., 2020). Under-resourced communities—including Black, Indigenous, Latinx, Homeless, poor, and otherwise marginalized and underrepresented communities—are disproportionately harmed from the effects of air pollution (Collins & Grineski, 2019; Zou et al., 2014). While air can intersect with a variety of forms of toxicity and overlap with other categories in this section, we highlight a small set of research in EC that is specifically focused on air pollution. Kuchinskaya (2018), for example, examines how the seemingly invisible nature of air pollution can be made more perceptible through visualizations, in this case, a public art installation installed in Pittsburg, Pennsylvania. Further, Olofsson et al. (2018) analyze how news media and nonprofits in Delhi, India—home to some of the worst air pollution globally—frame the air pollution issue in relation to EJ.

**Water.** The crisis over lead contamination in the water supply system in Flint, Michigan in the U.S.—a majority African American city plagued by economic downturn—drew significant attention to water as an EJ issue. Carey and Lichtenwalter (2020) and Congdon Jr. et al.(2020) highlight the lack of EJ in media framing of the Flint water crisis because media tend to blame poor government structures, shifting the focus away from racial and economic inequalities at the root of systemic issues. A common approach to community organizing in the face of the Flint water crisis was a flattened hierarchy of leadership, where mothers and children drew upon pre-existing networks to demand change (Thomas, 2020a, 2020b). Yet, many middle- and upper-class residents of the surrounding area, used various sense-making strategies to attempt to absolve themselves of responsibility toward action (Mesmer et al., 2020). Flint is not the only example of water injustice. Colonialism and capitalism intertwine with water sovereignty and access globally (Das, 2019; Schmitt et al., 2020). Since water spans large geographic regions and impacts people across borders and identities, multi-stakeholder initiatives (MSIs) have to come together to build resilient water systems (Mitra, 2018). Capitalism continues to exacerbate water injustice, as private actors gain more access to both water and shorelines (Thompson, 2020). These messy border spaces of shorelines lead us into the interconnected nature of water justice with land justice.

**Land.** Contentious struggles over land have been particularly important for highlighting the role that colonialism plays in producing environmental injustice. Indigenous people globally have survived amidst and resisted centuries of settler attempts to dispossess and target their land bases for harmful development practices (LaDuke, 1999; Teves et al., 2015). For example, the nuclear industry in the U.S. has been especially harmful for Native communities, both because of increased radiation exposure that Native people living near uranium mines and mills experienced and because uranium mining and nuclear testing have primarily taken place on lands that are sacred to many Indigenous people (Bears Ears Inter-Tribal Coalition, n.d.; Endres, 2018; Johnson, 2018). Others have argued that some apparently pro-environmental land movements are tied up with colonial discourses that erase

Indigenous presence and sovereignty (Ewalt, 2011; Spoel, 2018). Struggles over land also include disagreements about appropriate scales of governance. For example, controversies over public lands designations in the U.S. have often centered on "states' rights" or "wise use" discourses that call for limits to federal regulation over public lands or argue that federal restrictions on extractive development and grazing on public lands unfairly harm low–income rural communities (Peeples, 2005; Thompson, 2020). It is important to note, however, that some arguments about these harms are produced by corporate campaigns and astro-turf organizations (Bsumek et al., 2014; Perdue & Pavela, 2012). Further, unjust siting decisions reveal how more privileged communities have the resources to reject locally undesirable land uses, whereas more marginalized communities may be less able to fight against them (Johnson, 2019a; Solis, 2020). Thus, struggles over land often compound existing injustices, such that the most marginalized communities experience the most harm from development.

**Toxins and Waste.** Toxins and waste are a key starting point for the EJ movement and research. As discussed previously, early EJ movements in Warren County, Cancer Alley, Love Canal, and Navajo Nation focused on toxic and hazardous emissions, leaks, and waste from industries located near poor, BIPOC, and otherwise marginalized communities. As such, a focus on toxicity and hazardous wastes exceeds a singular focus on air, land, or water. Pezzullo's (2003b, 2004, 2007) research program theorizes the concept of toxic tourism (see also Bowers' 2013 application). Through participant observation with EJ groups offering "toxic tours," Pezzullo unpacks the communicative, performative nature of these events as modes for witnessing, being present with, and participating in challenging toxic environmental injustices. Peeples (2011, 2013) theorizes how people visualize and create the presence for toxins and toxicity that are often invisible (see also Barnett, 2015). Through analysis of Edward Burtynsky's *Manufactured Landscapes* photos of toxic places, Peeples (2011) conceptualizes a toxic sublime that grapples with tensions between the horror and awe inherent in toxic sites. Moreover, a body of research has focused specifically on nuclear waste from the perspective of environmental injustice, environmental racism, and environmental colonialism for which Indigenous peoples and nations experience disproportionate harm from the nuclear production process (Clarke, 2010, 2017; Endres, 2009a, 2009b, 2012, 2013; Peeples et al., 2008). Additional research on injustices in the distribution of toxicity and waste includes the military waste in Guåhan (Na'Puti, 2016), nuclear weapons waste (Johnson, 2018; Pezzullo & Depoe, 2010), and trash (Peeples, 2003, 2011).

**Climate Justice.** Climate justice integrates EJ with approaches to climate change. Sze and London (2008) contend that climate justice expands EJ to attend to global places and constituencies by examining the relation between global and local with a focus on complex articulations of manifold actors (i.e. workers, social movements, private capital, government, and residents). The Climate Justice Alliance (2021), for example, brings together "frontline communities and organizations into a formidable force" to fight for just climate transitions (n.p.). Frontline communities generally contribute less to climate change yet face disproportionate burdens from the climate crisis and its threat multiplication of disasters (e.g., hurricanes and wildfires), refugee migration, and resource conflicts (de Onís, 2018a; Pezzullo, 2013). While climate change communication is a significant and robust area of environmental (and science) communication (e.g., Moser & Dilling, 2007), EC research that explicitly engages with climate justice is less prevalent. In the realm of media, Moernaut and Mast (2018) examine the framing of climate change in relation to EJ and Monani (2008) examines how two films about the Arctic National Wildlife Refuge (ANWR) express different visions of EJ. Na'puti et al. (2018) evaluate the enabling and constraining aspects of "climate math" framing in relation to climate justice movements calling for energy democracy. Pezzullo and

de Onís (2018) lay out the urgent need for more communication research on climate justice, noting:

> Climate change stretches us to feel the presence of the interconnection between subterranean fossil fuels and the atmosphere far beyond the Earth's surface, among ourselves and every other being on the planet, amid the voices of government and those on the frontlines of climate research and disaster.
>
> *(p. 116)*

**Energy Justice.** Energy communication—a sub-area of EC—can also be a vehicle for EJ research (Endres et al., 2016). Energy communication not only relates to climate change as an ongoing global phenomenon that intensifies unequally distributed harms and benefits but also relates to interdisciplinary research on energy justice (Sovacool & Dworkin, 2014). Cozen et al. (2018) call for energy communication scholars to extend their inquiry to "transitional colonialism and environmental justice" as well as energy democracy specifically (p. 291). de Onís's (2018a, 2018b, 2016) foundational research on energy coloniality examines ongoing energy injustices in Puerto Rico based on several crises that link coloniality, sociotechnical systems, and material and cultural systems of power. Scholars have also created a performance about fracking (Bodkin & Collins, 2017), examined how EJ is framed in discussions of oil extraction in ANWR (Monani, 2008), focused on the injustices in the Dakota Access Pipeline process (Johnson, 2019a), and analyzed energy utopia and energy poverty from the lens of energy justice (Schneider et al., 2016).

**Reproductive Justice.** Environmental issues overlap with reproductive justice in terms of discussions of population control, fertility, and "under what conditions one can exercise the right to *not* have children or the right to *have* children" (Di Chiro, 2008, p. 284). While only a handful of studies have unpacked this connection, EC scholars are increasingly interrogating how "women's bodies literally reside at the intersection of climate and reproductive justice" (de Onís, 2012, p. 9). Issues related to social reproduction such as infertility and miscarriages often remain invisible due to stigmatization, meaning that activists connecting these issues to environmental causes often have a harder time proving their connectedness (Murphy, 2017). Because of the often hidden nature of these issues, particularly in already marginalized communities, coalition building becomes key for pushing for systemic change to address reproductive injustices (Thomas, 2020b).

**Food Justice.** Food justice research typically engages tensions between individual changes and systemic changes in food production and consumption. Common issues, such as animal agriculture/big agriculture (Broad, 2019), access to nutritious food (De Souza, 2019; Guthman et al., 2014), and farm worker rights (Burch & Harry, 2004; Zoller et al., 2020), tend to favor one side of the continuum over the other. Highlighting individual advocacy, while Garner (2014) describes shopping at a farmer's market as food justice advocacy, Hahn and Bruner (2012) analyze "buying organic" in comparison with food justice practices such as eating vegan or vegetarian. Food documentaries can also contribute to delinking individual actions from food justice by failing to engage in justice conversations (Pilgeram & Meeuf, 2015). Broad (2016) describes the problems with individual approaches to food justice and analyzes how campaigns can be more effective in broadening their scope to avoid inadvertently blaming food injustice victims for their situation and make sure that food justice movements are targeted at those most in need. Gordon and Hunt (2019) contend that one cannot link food to EJ without a focus on food systems. Such efforts include decentering whiteness in the Dietary Goals for Americans (Broad & Hite, 2014) and placing stricter

regulations on the agricultural industry to protect workers and nonhuman animals (Broad, 2018). Schnurer (2012) points out how farm subsidies in the Global North continually lead to dumping excess crops in the Global South, which impairs local food suppliers who cannot compete with the unpredictable influx of free food. Effective food justice projects embrace hybridity (Seegert, 2012) and use community-based approaches that use community assets instead of focusing on deficits (Villanueva et al., 2016).

## *Recognition justice*

Recognition justice demands respect for and adherence to affected communities' values, traditions, and epistemologies rather than mere inclusion in processes (Hoover, 2017). This necessitates attention to unique ecocultural identities and the role of positionality in knowledge production (Milstein & Castro-Sotomayor, 2020). In this section, we review recognition-based EJ research that highlights models for centering non-dominant epistemologies in EJ research, including research on environmental colonialism and aesthetic-based research methods.

**Indigenous Knowledges and Environmental colonialisms.** Whyte (2018) argues that settler colonialism is a form of environmental injustice, not only because of the disproportionate devastation of Indigenous lands and people from nuclear production, fossil fuel production, and mining but also because it imposes a worldview of land, ecology, and beings that is incommensurable with Indigenous lifeways and relationships with land and places. While procedural and distributive environmental injustices are certainly experienced by Indigenous peoples and nations, focusing on recognition turns our attention to how the ecological worldview of dominant groups, particularly when imposed through settler colonialism, silences Indigenous knowledges. Within EC, researchers have focused on how nuclear colonialism denies Indigenous knowledges (Endres, 2013; Johnson, 2018), environmental decision-making processes undermine Indigenous sovereignty and participation (Johnson, 2019a), news media problematically cover Native American environmental issues (Moore & Lanthorn, 2017), climate fiction functions as a genre of settler colonialism (Pierrot & Seymour, 2020), and Indigenous activists in Guåhan resist militarism's impact on the environment (Na'puti, 2019a; Na'puti & Bevacqua, 2015). However, much of the scholarship in this area remains focused on analyses of settler colonial practices of environmental injustices to Indigenous lifeways and land. An emerging area that merits more attention is research that focuses on Indigenous epistemologies and futurities as modes of resurgence, survivance, and decolonization (Simpson, 2017; Tuck et al., 2014; Vizenor, 2008). Usha Sunda Harris (2018) highlights stories of Pacific Islander communities about climate change as form of self-representation in media. As this research continues to grow, Indigeneity as an analytic (Na'puti, 2019b) and Indigenous knowledges frameworks challenge the reliance on non-Indigenous frameworks as the default for EJ research. This allows researchers to, for example, engage with Indigenous criticisms of new materialisms and use Indigenous peoples' ways of describing their work, such as using water protectors, not protestors.

Another line of research has characterized the environmental colonialisms that impact communities in many forms and across a variety of spatial and temporal relations with colonialism (e.g., postcolonialism, neo colonialism, settler colonialism, etc.). For example, de Onís (2018b) illuminates "the interrelationship and roles that [colonial] systems and their discourses play in fueling both everyday and exceptional emergencies" (p. 4). The field would benefit from expanding its focus from the many environmental colonialisms that perpetuate injustices to forms of environmental decolonization.

**Art-based, Aesthetic, and Performance-based Approaches to EJ**. Our experiences with environmental injustices are not solely rational but are also affective. Through aesthetic and art-based approaches to EJ research and advocacy, researchers can broaden their audience, call attention to how bodies materially experience environmental harms, and embrace diverse epistemologies and ontologies. Pezzullo (2003a) highlights this connection, describing the "Cancer Alley" toxic tour in Louisiana as a performance-based approach to EJ activism. Unfortunately, most performance literature in EC does not explicitly engage EJ. For example, in Besel and Blau's (2014) edited volume, only a few chapters explicitly consider injustice (Blau, 2014; Del Gandio, 2014; Willard, 2014). However, this trend has started to change, as demonstrated by Bodkin and Collins' (2017) performance of "Fractured," which highlights the ugliness and injustices of hydraulic fracturing through a humorous depiction of a beauty pageant.

Addressing EJ issues through aesthetic approaches is not limited to performances. Architectural design (Crowe, 2020), product design (Sackey, 2020), photographs (Barnett, 2015; Peeples, 2013), and "cli-fi," or climate-change-themed fiction (Pierrot & Seymour, 2020), can communicate in different ways to new audiences. Moreover, autoethnographic (Thompson, 2020) and poetic forms of expression (Collins, 2020) can provoke readers to consider injustices through imagery, figurative language, and storytelling. Arts-based research may also be especially helpful in centering non-Western epistemologies and challenging settler colonialism (Charlie, 2016). Takach (2017) argues that art is uniquely helpful in teaching EJ, as it "offer(s) enormously effective potential to provide highly expressive, nuanced representations of the world and life on it; to cast fresh eyes on entrenched perspectives, inviting questions and conversations; and to engage, inspire, and activate audiences" (p 102). When done effectively, arts-based approaches can expand and recognize epistemologies outside of dominant or technocratic ways of knowing environmental issues. However, Stewart and Johnson (2018) caution that aesthetics alone without a justice orientation do not translate to better practices and policies.

## Future directions

Despite the research we have reviewed in this chapter, EJ research remains marginal in the broader field of EC. As such, the first future direction is simple: we need more. EJ spans the many topical areas typically considered in EC from media representations to participatory processes, to more-than-human communication to climate change to energy communication. We join the chorus of calls for more EJ research by arguing that if the field seeks to have any hope of having an impact on the many ongoing environmental crises, EC scholars and practitioners must center justice, equity, and systems of oppression that intersect with anthropocentrism and the destruction of people, water, air, land, and more-than-human beings. Centering the role of communication, media, and rhetoric is essential for imagining new models of participation and organizing; supporting and amplifying the worldviews, values, and humanity of underrepresented peoples; and constituting new possibilities.

One such possibility—and our second future direction—is building models of participation in environmental decision-making that value BIPOC epistemologies and ontologies and genuinely involve those who have the most to lose in decision-making. As Aikau noted in a panel discussion, this involves rethinking some of the basic communicative patterns that guide research on participation, such as shifting from the metaphor "giving people a seat at the table" to "a place at the mat" to center Pacific Islander positionalities (Hinkley Institute Radio Hour, 2021; see also Cordes, 2020 on metaphors). Likewise, we deliberately

use "participation in environmental decision-making" here as opposed to "public participation in environmental decision-making" to decenter settler norms of publicity and recognize that Indigenous participation is not always public-to-government, but instead government-to-government (Johnson, 2019b). This sort of thinking allows for attention to both procedural and recognition justice. In addition, we encourage EC scholars to delve into the questions of: (1) what role does communication play in more just and equitable models of participation? (2) how can models of participation center BIPOC knowledges? (3) What modes of communicating across difference and conflict offer our best tools for making truly just, equitable, and anticolonial decisions?

Third, there is a dearth of research focusing on international and borderlands environmental injustices, despite notable exceptions (Castro-Sotomayor, 2019, 2020; Chirindo, 2016; Sowards, 2012; Tarin, 2019; Tarin et al., 2017, 2020). This reflects a strong U.S.-centrism in EC research (Castro-Sotomayor & Pérez-Marín, 2015). We follow Banerjee and Sowards' (2020) advocacy that "the field of environmental communication needs to do more intercultural/international/decolonial research even as we need to take greater ethical consideration of how such research work plays out" (p. 16). One example encourages a move toward considering whether and how research about Indigenous communities, particularly sovereign Indigenous governments in the U.S and Canada, is international and intercultural communication.

Fourth, and relatedly, we align with Sowards' (2019) call to see more integration of publications written in languages other than English to build internationalization and celebrate the many languages spoken. This, of course, challenges the dominance of English-language scholarship and journals/publishers centered in the U.S., Canada, the U.K., and Western Europe. As Banerjee and Sowards (2020) note: "English has been considered the lingua franca of academic scholarship for many years, and for the foreseeable future is likely to continue to be the primary language of research and publication" (p. 2). Yet, Castro-Sotomayor's (2011; Naranjo & Sotomayor, 2011) Spanish-language publications about EJ struggles in Columbia and Ecuador and de Onís et al.'s (2020, forthcoming) Spanish-language publications about energy coloniality in Puerto Rico are notable exceptions. EC scholars need not be limited to these examples and welcome publications across a variety of languages. We agree with Banerjee and Sowards (2020) "that rethinking how research is conducted in non-white, non-English language, non-dominant cultures is one way to advance environmental justice, particularly through engaged scholarship that includes deliberation, participation, and decolonization" (p. 4).

Fifth, we hope that EJ scholars will continue to debate, discuss, and push the boundaries of the question: justice for whom? EC scholars and practitioners must pay attention to the web of connections across types of injustices, problematize the white-centeredness of much environmental work, and center race in EC research (Anguiano et al., 2012; Chiu & Arreglo, 2011; De Souza, 2019; Endres, 2020). In order to do so, we need "new voices, new thinking, and new strategies" that involve relationships with areas of communication scholarship-focused topics including race, ethnicity, and borders (Agyeman, 2007, p. 120). For example, Cisneros (2008) describes how media perpetuates the metaphor of immigrant as a pollutant, which could have profound connections with EJ EC research. Further, emerging scholarship focuses on justice for more-than-human others, in line with Indigenous worldviews that affirm the agency of animals, plants, and the earth (Broad, 2013; Endres, 2018; Schmitt et al., 2020; Whyte, 2018). As such, we call for more analyses and theorizing that engages with the multiplicities, relationalities, and intersectionalities of oppression (e.g., Crenshaw, 1991). We are not interested in proscribing which modalities or intersections of oppression need

focus. Rather, there is value in a variety of approaches depending on the context or site of research. There is value in looking at a discreet concept like anti–Black environmental racism or Indigenous resistance to environmental colonialism. There is also value in enhancing focus on environmental injustices that are intersectional, involving multiple compounding forms of oppression.

## Conclusion

In this chapter, we have presented one mapping of EJ work in EC. It is not the only possible mapping, but one that allows for tracing EJ work in the field along the facets of procedural, distributional, and recognition justice. We contend that all EC work should attend to EJ by expanding the crisis/care disciplinary framing to a crisis/care/justice framing, which centers justice in all of the work EC scholars do seeking to ameliorate environmental crises. This does not mean that justice or inequity has to be the main focus of all research projects, but it should be an underlying ethical consideration in the same way that crisis and care are. Systems of oppression are at the root of all environmental crises. As such, EC scholars cannot solve environmental problems, including the climate crisis which is already disproportionately affecting marginalized communities, without attention to justice and equity.

EJ should infuse not just EC research, but all of the everyday and extraordinary scholarly practices and performances of EC scholars, practitioners, and organizations. This might include: decolonizing methods (Smith, 2006), rewriting mission statements, and changing review processes (e.g., annual reviews and RPT) to value community-based research in collaboration with frontline EJ communities. As the climate crisis worsens, EC educators need to teach about climate justice in our classrooms (Louis, 2016; Milstein & Griego, 2017; Stack & Flower, 2017; Takach, 2017; Typhina, 2017; Walker, 2017). EC as a discipline should also consider changes in its practices as a scholarly community, such as prioritizing more support for diverse BIPOC, poor, and marginalized communities; funding research, teaching, and service that is aligned with EJ; devoting special issues and providing publishing opportunities for scholars researching EJ topics; celebrating the ongoing engagement with EJ groups through participatory methods; and changing our conference practices. While there are scholars in the field who have been pushing for and enacting these changes (for which we are grateful), we hope that the entire field of EC will commit to rethinking and revising our institutions, structures, policies, and cultures to center EJ.

## Further reading

de Onís, Catalina M. (2021). *Energy Islands: Metaphors of power, extractivism, and justice in Puerto Rico.* University of California Press.
This new book came out just as we were completing final revisions on this chapter. It offers a deep and nuanced analysis of local community groups in Puerto Rico (a territory of the United States) that are working for energy justice as a way to create alternatives to extractivism, capitalism, colonialism.

De Souza, R. (2019). *Feeding the other: Whiteness, privilege, and neoliberal stigma in food* pantries. The MIT Press.
This book homes in on food justice through an analysis of the communication in two food pantries in a mid-sized city in North America. It highlights how food insecurity is linked with discourses of neoliberalism, blaming, and economic productivity and argues for elevating the voices of the hungry in a move towards justice and equity.

Pezzullo, P. C. (2007). *Toxic tourism: Rhetorics of pollution, travel, and environmental justice.* University of Alabama Press.
This award winning book presents the results of fieldwork with environmental justice groups hosting toxic tours as a mode of publicity and activism. In doing so, it analyzes discourses of tourism, toxicity, and resistance to environmental injustices.

Sandler, R., & Pezzullo, P. C. (2007). *Environmental justice and environmentalism: The social justice challenge to the environmental movement.* The MIT Press.
This interdisciplinary edited volume examines the tensions between environmental justice and environmentalist perspectives and practices. It offers a series of case studies that examine whether and how environmental justice and environmentalism might work together in alliances and coalitions that benefit both.

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# 5

# THE PLACE OF THE ENVIRONMENT IN THE FIELD OF COMMUNICATION FOR DEVELOPMENT AND SOCIAL CHANGE

*Patrick Murphy*

## Introduction

Communication for development and social change (CDSC) is an umbrella phrase used to describe a host of theories, concepts, methodologies, and strategies for engendering development through communication. The field has also been referred to as Development Communication and Communication for Development, giving a sense that its purpose and trajectory have been formed by conflicting schools of thought and distinct visions of development shaped by different political agendas, social contexts, institutional affiliations, and understandings of civic engagement (Manyozo, 2012; McAnany, 2012; Tufte, 2017; Wilkins, Tufte & Obregon, 2014). At its core, CDSC is defined by its commitment to improving the quality of marginalized people's lives via the application of communication strategies and principles.

CDSC has been driven by many of the same questions and points of concern as environmental communication, such as sustainability, citizen engagement, public consultation and participation, conflict and cooperation tied to assumptions about agency, social justice and voice, and cultural experience. In the broader sense, CDSC also shares with environmental studies a similar evolutionary arc in terms of how, during their formative stages of development, both were driven by big picture theoretical orientations tied to powerful political and economic interests that left out various stakeholders, including average citizens and marginalized communities. And like environmental politics, a wide range of scholars, practitioners, and activists responded to the inflexibility and top-down nature of these all-encompassing "development" discourses by elaborating an array of new and different ways to imagine how problem solving could be approached in ways that privilege collaboration, cultural knowledge, human rights, women's rights and, most recently, Nature's rights. Yet despite these overlaps, CDSC's treatment of the environment within its "family tree" (Waisbord, 2001) of communication theories, strategies, and practices has often been oblique, and the field has rarely drawn from the lessons of environmental studies.

In an effort to locate the place of the environment within CDSC's complex historical terrain, this chapter traces how it has moved from an unarticulated discursive presence in

early development theory, to a more deliberate point of focus within more recent CDSC scholarship and practice. After a short introduction to the Western origins of CDSC, the chapter is organized as follows: the first section presents how "Third World" development was imagined as a product of "modernization" through the diffusion of innovations. The second section maps the rise of the participatory paradigm in relation to environmental policy discourses of citizen-centered problem solving and highlights the emergence of "participatory environmental communication." The third section considers how the discourse of sustainable development (SD) is being pushed beyond Western growth-based trajectories that are incompatible with biophysical planetary boundaries by a new version of "culturally-centered" SD communication committed to multidimensional, ecologically viable cultural change. The fourth section explicates the post-development and Buen Vivir discourses emanating from Latin America, and how these represent a radical bio-centric turn in how development and social change are understood. Throughout this overview, I provide an assessment of how CDSC has slowly moved toward questions and concerns central to environmental communication and the human relationship with the natural world. While admittedly a partial and limited review given the field's exceptionally diverse and often competing visions of "development," my aim is to present how some of the more prominent and emergent lines of CDSC theory and research have treated the environment.

## Origins and trajectories of CDSC

CDSC's history is uneven and complex, defined by shifting and contested ideas about "development," profoundly shaped by "modernization" and "participation," tensions between technical expertise and collaborative decision making, vertical and horizontal models of communication, global versus local interests, and active versus passive conceptions of audiences and populations. McAnany (2012) notes that since its inception, CDSC has "evolved from a top-down, media-centric, quantitative-scientific, effect-oriented, and a manipulative-centralized oriented system to a more participatory, empowering, democratizing and sustainable one" (p. 10). Some theorists argue that these differences make it difficult to speak of CDSC as a coherent, singular field, and so it should be seen instead as composed of different camps shaped by distinct schools of thought (Manyozo, 2012; Melkote & Steeves, 2001; Servaes, 2013; Tufte, 2017). Nevertheless, most scholars would agree that the roots of what is today the broad field of CDSC can be traced back to a post-World War II global recovery plan crafted by Western elites during the 1944 Bretton Woods Conference. The plan called for an international economic order operated through top-down, expert-led development initiatives—a "big picture" historical point of departure that profoundly shaped both the thinking behind and mission of early CDSC. In 1961 the UN deepened this global, nation-building agenda by proclaiming the 1960s as the "Decade of Development." Waisbord (2001) observes that during this nascent stage, "development was synonymous with political democracy, rising levels of productivity and industrialization, high literacy rates, longer life expectancy, and the like" (p. 1), and "development communication" was created to facilitate the broader post-war international aid programs to countries in the "Third World." Since this nascent stage, CDSC has developed along multiple trajectories and become a truly expansive field.

## The modernization paradigm and endless growth

The communication theories that informed early development undertakings were rooted in "mid-century optimism about the prospects that large parts of the post-colonial world

could eventually 'catch-up' and resemble Western countries" (Waisbord, 2001, p. 1), explicitly linking "progress" to indicators of modernity associated with Western societies. At the center of this vision of development was "modernization," a discourse elaborated to not only address the disparities between industrialized and underdeveloped parts of the world, but also to articulate First World interests. Anchored in interventionist politics enacted through information and innovation emanating from the outside to engender cultural transformation within developing societies, the role of communication within the modernization paradigm was to catalyze social change by raising material expectations.

Much of the theory designed to guide the modernization of the Third World was generated by Western communication scholars who asserted the primacy of information and technology for the transformation of traditional societies (McAnany, 2012). The foundational text was Daniel Lerner's *The Passing of Traditional Society: Modernizing the Middle East* (1958). Considered by many as "the Bible of modernization theory" (Kraidy, 2013, p. 106), the book can be "best understood as a product of the Cold War and superpower rivalry in what was then called the Third World" (Shah, 2011, p. 107). Lerner (1958) elaborated a theory of modernization in which people were classified into one of three categories: traditional, transitional, or modern. He viewed traditional culture as an obstacle, asserting that to be modern was in effect to break free of "backward" cultural beliefs and practices by embracing Western values and behaviors. Culture, for Lerner, was the shaper of human behavior and so he saw in media the tool to culturally "spread psychic mobility" and trigger "empathy," which would in turn facilitate an "increase in expectations." Lerner's work was grounded in market economics and liberal capitalism within the context of Cold War geopolitics, and his vision of modernization is equal parts adoption of consumer lifestyles and anti-communist appeal. As Shah (2011) bluntly puts it, for Lerner, "(t)he ability to buy things and vote were among the clearest indicators of a modern nation" (p. 3).

The training of development practitioners likewise followed the notion that cultural transformation could be driven by information. Of particular importance was Everett Rogers's (1962, 1969) "diffusion of innovations," which drew from and operationalized Lerner's emphasis on communication. Rogers argued that a new innovation (e.g., an idea, behavior, or product) was not simply absorbed by a population, but rather went through a process in which it was adopted or rejected based on categories of actors (ranging from early adopters to laggards) and stages of awareness, decision-making, and use. Development practitioners were taught that communication appeal strategies needed to be adjusted in relation to the adopter categories as well as the adopter's capacity to evaluate and test the advantages of the innovation within their own lives. While most diffusion of innovation initiatives undertaken was implemented in "developing regions," the formation of this theory emerged from Rogers's work with farmers in the U.S. Drawing from these roots, early innovation initiatives unreflexively implicated eco-politics and relationships with the land as they included the adoption of new seed varieties to increase agricultural yield, modern land use management practices to control soil erosion, and fertility-reducing family planning practices. In such modernization, projects communication was used to introduce awareness of the innovation and to promote its use, reflecting how the theory was grounded in rapid knowledge acquisition and adoption, not long-term thinking about the impact on ecosystems and their communities.

The modernization–diffusion of innovation school of CDSC became the dominant paradigm in large measure because of its institutional moorings, which included the United Nations Scientific Educational and Scientific Organization, the United States Agency for

International Development, philanthropies such as the Ford Foundation, and university research centers founded by the seminal modernization theorist Professor Wilbur Schramm at the University of Illinois in 1947 and Stanford University in 1955, and by Nora Cruz Quebral in Los Baños (Philippines) in 1954 (McAnany, 2012; Melkote & Steeves, 2001). Proponents of this school asserted that, since underdevelopment could be blamed on Third World cultural traditions, those countries needed to "follow in the footsteps of the West to achieve economic 'take off'" (Shohat & Stam, 1994, p. 17). Environmental policy scholars Peter Christo and Robyn Eckersley (2013) point out that this metaphor of flight was taken from Walter Rostow's five stages of economic development and enthusiasm for the "space race,"

> Beginning with benighted primitive traditional societies and, after a series of stages including 'pre-take-off' and 'take-off' during which traditional societies disintegrate and heavy industrialization occurs, culminating in a 'period of mass consumption'—with affluent, American- style society as its apogee.
>
> *(pp. 35–36)*

Escobar (1988) has argued that, in addition to the material and organizational fruits of the industrialized world, these stages toward "launch" directly reflected the World Bank's post-World War II development mission, which emphasized science and technology.

This understanding of development carried with it a vision of industrialization that cast nature in utilitarian terms while promoting ecologically unsustainable relationships with the earth by putting ecosystems at the service of human welfare. Natural resources were thus understood for their commercial value and how they were tied to progress—assumptions supported by a general silence regarding anthropogenic pressures and questions of ecological degradation. This instrumental vision of environmental stewardship was profoundly anthropocentric, aligning modernization with the "Promethean discourse" (Dryzek, 2013) in some highly problematic ways. First, like early Prometheanism, the modernization paradigm presents an unarticulated understanding of the environment centered on limitless economic growth (Murphy, 2017). That is, the presumption that abundant natural resources are accessible through innovation—a notion so ingrained and taken for granted that it emerges as a naturalized, commonsense assumption within the push for "progress" that the modernization theory rests on. Second, like Prometheanism, modernization theory positions "scarcity" as an "economic, not an ecological, phenomenon" (Garrard, 2004, p. 17). Third, modernization champions the Promethean discourse's emphasis on the entrepreneurial actor defined in part by the actor's ability to adjust and innovate. Indeed, the diffusion model is explicitly designed to move actors (whether understood as individuals, communities, or nations) to adopt new innovations to overcome challenges and increase productivity.

When modernization's underlying Prometheanism is examined via the adoption of chemical farming techniques to increase crop yields and grow economies, for instance, the devastating long-term impact of its premises on ecosystems and communities comes into greater relief. van de Fliert (2014) recounts how economic growth and technology-centered farming programs in Asia and Latin America led to undesirable environmental, social, and cultural side effects.

> The negative environmental impacts included pollution of waterways and soils due to excessive use of chemical fertilizers and pesticides, a decline of biodiversity in agricultural areas causing increased pest outbreaks, salinization, and depleted fertility of soils sometimes followed by abandonment of farm land, and water scarcities in major river

basins. Chronic disease and catastrophic epidemics in livestock operations have oc-
curred as the result of high densities and low diversity in animal husbandry.

*(p. 128)*

Programmatically, the transfer of technologies was promoted via top-down communi-
cation approaches that pushed "one size fits all" innovation packages, and farmers' needs
"were defined based on national goals, such as food security and poverty alleviation, rather
than their individual livelihoods, goals, and aspirations". Impact was measured in terms of
"adoption rates," and based on their speed of adoption farmers were classified as innovators,
early and late adopter, and laggards. van de Fliert (2014) concluded that "(i)n all, the focus
was on the innovation, not on the human beings whose capacity and specific situations
make it possible, or impossible, to integrate a new technology into their existing system"
(p. 129). As this experience with the adoption of farming innovations suggests, despite
the modernization paradigm's (ostensible) mission of making life better for people in the
"developing" parts of the world, it aligned with and extended Western colonial expansion
interests as "progress" and "growth" were promoted with little, if any, regard for people
and their environments.

Despite its institutionalization and widespread adoption in developing parts of the world,
the modernization paradigm was met with considerable criticism. Shah (2011) notes that a
number of prominent Western scholars were suspicious of the modernization thesis's prem-
ises and predictions, while thinkers in the postcolonial world considered it paternalistic,
manipulative, and far from value-neutral (pp. 5–6). In Latin America, the critique was es-
pecially intense and sophisticated. Led by Antonio Pasquali, Ariel Dorfman, Armand Mat-
telart, and other scholars in the region, the reaction was part of a broader concern about
dependency, capitalist domination, and cultural imperialism (Rodriguez & Murphy, 1997).
While pivotal in recharting the course of CDSC, it is important to note that whether from
the "core" or the "periphery," at the time none of these critiques of modernization were
environmental in focus. Moreover, the nation-building focus has largely faded since the first
wave of CDSC, but vertical, expert-to-audience development communication still informs
many CDSC projects with long-term goals that have often been pursued using public in-
formation campaigns and edutainment models that "localize" campaigns through language,
entertainment aesthetics, and local writers and producers (Singhal & Rogers, 1999, 2004).

## The participatory model of communication and environmental governance

The absence of ecological concerns in early CDSC notwithstanding, responses critical of
the modernization school facilitated the emergence of the participatory model of commu-
nication. Focused on interpersonal networks and dialogical modes of communication, it
quickly became the dominant paradigm's most significant challenge (Huesca, 2008). The
turn toward this new approach to CDSC began in the 1970s, inspired by the praxis-centered
theoretical advances of Latin American scholars such as Bolivian Luis Ramiro Beltrán, Par-
aguayan Juan Díaz Bordenave, and most significantly, Brazilian education scholar Paulo
Freire (Barranquero, 2019; Huesca, 2008; McAnany, 2012; Morris, 2005). Freire asserted
that under the dominant paradigm development projects perpetuated the interests of elites
and the continuity of inegalitarian relations and that the vertical structure of many projects
paralleled the hierarchical organization of landlord-peasant relations (Huesca, 2008, p. 182).
His book, *Pedagogy of the Oppressed* (Freire, 1968), attempted to redraw the relationship of
oppressed-oppressor and address the power asymmetry in social change by presenting an

"ontological call" anchored in five principles: humility, empathy, love, hope, and dialogue (Suzina & Tufte, 2020, p. 413).

These principles, particularly dialogue, were foundational in moving CDSC toward a more equitable notion of power and exchange by rejecting the top-down, expert-led information-transfer approach of the modernization discourse. Indeed, the Freirean participatory approach envisioned social change as "a *process*, not a product" (McAnany, 2012, p. 91). This emphasis on dialogical exchange was key to overcoming what Bolivian CDSC scholar Alfonso Gumucio-Dagron (2008) called "the problem of communication," which under the modernization thesis had been conceived of to inform, conform and deform:

> Inform as a one-way flow of content towards the passive receiver (the old paradigm is very much alive); conform as a way of adjusting the behaviour of people to the needs of expanding markets and/or for political purposes; and deform as distorting history, memory, truth and culture, for the purpose of domination either by local privileged classes or by multinational conglomerates.
>
> *(p. 70)*

By the 1980s and 1990s, the participatory communication model had gained considerable momentum, as the model's emphasis on process, dialogue, and empathy made it attractive for those searching for an approach to development and social change that took into consideration structural inequalities and local knowledge (Huesca, 2008; Morris, 2005). Initiatives were animated through horizontal as opposed to vertical modes of communication, foregrounding the active involvement of citizens to identify problems and develop solution strategies and their implementation (Tufte, 2017). "Citizen voice" became a core value, even penetrating institutions associated with the modernization paradigm, such as the World Bank, which published in number of reports advancing the notion that citizens' voices should drive the assessment of development priorities (e.g., Narayan, Patel, Schafft, Rademacher & Koch-Schutle, 2000).

Grounded in these qualities and identifying features, one of the key frameworks emerging from the participatory model is what Danish CDSC scholar Thomas Tufte (2017) labels "the citizen perspective." Tufte asserts that this perspective emphasizes empowerment and collective action, and can be understood in relation to "social imaginaries and the rights, capacities and opportunities of all individuals and collectives to be able both to formulate and articulate these and see them reflected in communication for social change initiatives" (p. 171). Drawing on the work of Portuguese sociologist Boaventura de Sousa Santos, Tufte argues that the citizen perspective is conceptualized as a matter of "knowledge-as-emancipation" (as opposed to "knowledge-as-regulation," which is central to the diffusion model) that engenders a connection to cultural experience and social imagination, fostering "cultures of governance" grounded in other forms of knowledge (lay, popular, peasant, women's, indigenous, and urban). Here, principles of social justice, multi-vocality, diversity, equity, and contestation are recognized as vital to the pursuit of positive social change.

In some important ways, the defining characteristics of the citizen perspective identified by Tufte align with many of the guiding qualities of "civic environmentalism" (Able & Stephens, 2008) and other community-centered policy discourses within environmentalism, such as "democratic pragmatism" (Dryzek, 2013) and "communitarian rationalism" (Williams & Methney, 1995). Within these discourses, participation is understood through the power to influence the policy making process and outcomes, which include direct access to policy making, access to information, structural characteristics that promote constructive

interactions, adequate analysis, and enabling of future processes (Tuler & Webler, 1999). Participation is thus operationalized via public consultation, citizen deliberation, policy making as dialogue, right-to-know legislation, and public inquiries (Dryzek, 2013). Within these citizen-centered approaches to environmental stewardship, "self-determination" emanating from an enlightened citizenry that governs directly in its own behalf is the central value, especially when it is driven to pursue a common public interest. This approach rejects the delegation of authority to experts, which is seen as distancing government from the people (Williams & Matheny, 1995, p. 27). Indeed, the emphasis sits squarely on *governance* as an interactive, on-going problem-solving process requiring participatory inquiry and proactive, self-reflecting citizens capable of confronting experts, as opposed to government as the administrative, institutional locus of decision-making power.

There are, of course, important contextual and conceptual differences between the "citizen perspective" of CDSC and "civic environmentalism" that have implications for environmental stewardship. First, community-centered environmental policymaking emanates from a "rights based" discourse tied to liberal democracies and rests on the assumption that political participation will be protected by democratic institutions. While a reality in most Western nations, traditions of democratic decision-making and public consultation are not necessarily parts of the political landscape of many developing countries. Moreover, the potential to practice shared governance in many societies today is negatively shaped by gender and power arrangements, racism, social hierarchy, corruption, and even violence (Murphy & Tinga, 2019). Second, conceptually the kind of social change that Tufte and other scholars have theorized through the citizen perspective of CDSC is tied to epistemological changes that are transformative *and* empowering as they are a matter of global cognitive justice by elevating the importance of local knowledge.

Despite these conceptual differences and acknowledging the difficulty of overcoming some of contextual factors, given the common focus on governance-as-process and shared emphasis on the agentic citizen there are significant overlaps about participation that cannot be disregarded when facing environmental stewardship, particularly in this age of ecological crisis. For instance, in most contemporary environmental mitigation projects and CDSC initiatives alike, an array of social actors is involved (e.g., national and local governments, NGOs, corporations, and civil society groups). Collaborative problem solving is shaped by multiple stakeholders in these situations, as participation often involves interests both within and outside government. As Odugbemi and Jacobson (2008) assert, within these "real world conditions" a community's interests can be empowered and even amplified in relation to opportunities created through public–private partnerships. Importantly in these partnerships, communication centered on public consultation, citizen deliberation, and participatory processes can be empowered by citizen groups and other non-state actors even in exceptionally difficult circumstances (Rodriguez, 2011). While many challenges remain, these participatory communication processes and partnerships are the channels through which governance can be exercised even without the security of formal democratic institutions.

Yet questions remain about the extent to which authentic participation can be realized. Indeed, the appropriation of voice has been a point of concern and criticism in both the participatory model of CDSC and civic environmentalism. Morris (2005) notes that within the range and diversity of the CDSC participatory paradigm, the participatory aims and outcomes of the model's Freirean origins have not always been agreed upon or met, and others have argued that the model has been especially vulnerable to co-optation (Gumucio-Dagron, 2008; Huesca, 2008; Jacobson & Servaes, 1999; Servaes, 2001). Scholars and practitioners of environmental policy formation have been equally cautious, understanding that when not

authentically engaged, the collaborative possibilities of community-centered environmentalism are highly susceptible to corporate and/or state actors' own agendas (Abel & Stephan, 2008; Dryzek, 2013; Fischer, 2000; Williams & Matheny, 1995).

While these concerns are important, the dialogical processes and collaborative problem-solving elements of citizen–centered communication have nevertheless been instrumental in the formation of what CDSC scholar Usha Sundar Harris has dubbed "participatory environmental communication" (PEC). In her book, *Participatory Media in Environmental Communication*, Harris (2019) presents a vision of environmental problem solving that is horizontal and centered on community-building communication strategies animated through adaptation, reciprocity, resilience, place-based knowledge, and human–nature relations. Based on her research in the south Pacific islands where the environmental movement was shaped directly in relation to 50 years of nuclear tests, Harris explores how communication serves as a means to help people "build their capacity to identify the links between environmental changes and impacts on their livelihoods, access to energy, food and water security, health and sanitation, among other issues" (Harris, 2019, p. 11). Defining PEC as a process-oriented approach anchored in knowledge sharing and community action, Harris elaborates a theoretical framework for citizen engagement in environmental protection that puts the scholarship of CDSC and environmental communication into a productive dialogue. This framework is composed of three interrelated elements, or the "DNA" of participatory environmental communication:

Diversity—enables innovative and transformative thinking. The term here means both difference and inclusion. Networks—complex system of relationships connecting both human and non-human worlds.

Agency— an action or a doing of human and more-than-human entities, which leads to an effect or outcome (Harris, 2019, p. 33).

This approach to PEC is reliant upon self-organizing, proactive, self-reflecting citizens who understand that they are part of an ecosystem, extending the field of CDSC decisively into ecologically engaged terrain. The power of the DNA model is that it is inclusive and engenders agency by building resilience in vulnerable communities, corresponding in some interesting ways with recent environmental justice scholarship that emphasizes "decentralized organization and cooperative networks to respond to environmental problems; the preferred locations of policy processes are communities, instead of bureaus or markets" (Able & Stephan, 2008, p. 154). Moreover, it is well suited to take advantage of the affordances of new, more personalized, mobile media technologies that facilitate networking, information exchange, and community building (Kleine & Unwin, 2009; Ogan et al., 2009; Tinga, Murphy & Sessou, 2019; Unwin, 2009). Harris's articulation of diversity is also highly noteworthy, which she understands as "inclusive of non-human worlds, scientific and traditional knowledge, socio-cultural values and beliefs, demographic variables such as race, gender, age and (dis)abilities, to name a few" (2019, p. 40). Finally, and perhaps most significantly, her rendering of PEC is designed as a process that asks its participants to imagine a different reality, one that pushes CDSC toward the notion of environmental citizenship.

## Rethinking sustainable development in CDSC

SD is "arguably the dominant global discourse of ecological concern" (Dryzek, 2013, p. 147). It is closely associated with the work of international governmental organizations and nongovernmental organizations (NGOs) and by extension the politics and institutional encasements of contemporary CDSC. An interest in SD gained momentum in the development

sector after the publication of *Our Common Future*, a report commissioned by the World Commission on Environment and Development (1987) led by Norwegian prime minister Gro Harlem Brundtland. Rejecting Promethean notions of endless growth, the report supported the idea of "relative limits" in which development was understood as a matter of meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (p. 8). The Brundtland report also recognized the increasing disparities between rich and poor countries, identifying poverty eradication as a prerequisite to development. To contend with the balancing act of meeting present needs *and* tackling poverty in the developing world, it recommended "more economic growth and trade, with faster growth rates in the global South to build capacity and catch up with the global North" (Christoff & Eckersley, 2013, p. 55). To pursue these goals, a plan of action called Agenda 21 was produced to develop international and national SD strategies, providing the organizing principle for the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, also known as the "Earth Summit."

According to Christoff and Eckersley (2013), the agreements made at the Earth Summit produced the "compromise of liberal environmentalism," asserting that SD was selected because "it maintained that environmental protection was compatible with the international economic order" (p. 56). In fact, however, this market-based articulation of SD grossly underestimated the tensions between capitalist growth and environmental protection. Indeed, in many ways, this approach represents a "reformed" version of the modernization paradigm, merged with some of the local problem-solving characteristics of the participatory model (sans the overt focus on grassroot community empowerment) with a nod to environmental limits and the fragility of ecosystems. As Servaes (2013) notes, beyond the widespread adoption of the term "sustainability" in ratified agreements, protocols, and conference themes, little has changed in terms of poverty reduction (p. 4). A large part of the problem is that, though less explicitly Promethean, within this articulation of sustainability, development as industrialization and technological growth continues to frame planning and decision making so that "society serves the economy, and not vice versa" (Hull, 2008, p. 74 as quoted in Servaes, 2013, p. 4).

In response to this Western vision of SD, Servaes and colleagues (2013) propose instead a multidimensional approach to SD grounded in African and Asian perspectives and experiences. Departing from Western ideology that emphasizes "competition," these perspectives and experiences espouse a "middle way" centered on "evolvability" in relation to ecology and economy and assert that the notion that development cannot be divorced from its human and cultural context. As Servaes concludes,

> In contrast to the more economically and politically oriented approach in the traditional perspectives of SD, the central idea in the alternative, more culturally oriented versions is that there is *no universal development model* which leads to sustainability at all levels of society and the world, that development is an integral, multidimensional and dialectical process that can differ from society to society, community to community, context to context. In other words, each society and community must delineate its own strategy for SD.
>
> *(Servaes, 2013, p. 9)*

To illustrate this culturally oriented understanding of SD, numerous Asian and African case examples reveal the multidimensional complexity and challenges of this middle way. One particularly rich example is provided by Kiran Prasad (2013), who details how a confluence of movements and campaigns involving a people's rights movement centered on land, water,

and forest led by women and grounded in eco-religion as a way of life reshaped the contours of SD in India. As with many other nations, development paradigms in India had long been informed by expert-led, top-down information, knowledge, and experience closely associated with the modernization thesis. This communication model was foundational to the country's Green Revolution. Yet after years under this national development plan, it became apparent that in some regions growth-centered development had adversely impacted the environment, whereas in others environmental degradation made growth and development impossible. The existential crisis experienced by the poor under these conditions precipitated a series of movements that eschewed the Green Revolution's dependence on the top-down expertise of scientists, development planners, and government technocrats, positioning instead those who are typically at the fringe of SD, such as farmers, tribes, and women, as the innovators. This change facilitated a paradigm shift, reversing the "lab to land" formula of industrial farming to one where agricultural innovation now had scientists learning from the communities in the field and going back to the lab to "understand the regenerative power of nature and the knowledge inherent in communities" (p. 97).

Putting communities at the center of SD has also moved it toward a fuller recognition of the eco-religious underpinnings of environmental conservation because for some communities, biodiversity preservation is a way of life, manifest in animal rights, the protection of trees, the treatment of the earth, and resource sharing. Prasad (2013) notes that in the 1990s this community-centered environmental turn coincided with an intense period of social and political activity in India: "national campaigns centered on the right to information, and a movement for women's rights and violence against women, rehabilitation of people displaced by development projects, and movements against big dams and protection of the environment" (p. 100). As neoliberalism eroded their client-patron relationship with the state, NGOs began to play a significant role in catalyzing social movements and emerged as important non-state actors helping communities to reshape the terrain of development. The power of these partnerships helped produce a right to information law in 2005. The process leading to the law generated an explosion of information channels and activities, designed to foster open debate and informed decision-making (e.g., mass media campaigns, public meetings, coalition building, petition drives, and pamphleteering). Community media channels ranging from radio, TV, video, and web-based networks afforded marginalized communities with opportunities for self-representation, voice, and dialogue to "promote gender justice and sustainable development" (p. 101).

Such shifts toward communication and culture reshaped SD efforts in terms of what kinds of knowledge are valued and made accessible and the actors involved in its production and dissemination. They are also in line with environmental communication scholarship focused on voice and participation (e.g., Depoe, Delicath, & Elsenbeer, 2004; Peeples & Depoe, 2014). Nevertheless, Prasad's example from India further demonstrates the contextual complexity of such changes, e.g., how situational circumstances involving converging forces, synergies, and distinct sets of actors shape and define SD as a culture-centered process, underscoring Servaes' assertion that there is no universal model of SD.

## Postdevelopment and CDSC's ecocentric challenge

The most radical challenge to the politics and practices of contemporary CDSC, particularly in relation to the environment, has been the emergence of the "postdevelopment" (PD) and related "degrowth" discourses. PD is a critical response to the history and practices of development and rejects the underlying notion within SD that growth-based trajectories are

compatible with biophysical planetary boundaries. In this sense, PD presents a decisive break with the hegemonic-Western idea of modernity and is part of a broader range of environmental transition discourses (e.g., ecofeminism, deep ecology, and environmental justice) that confront citizens with a radical rethinking of the human relationship with the earth (Murphy & Castro-Sotomayor, 2020).

There are a number of interrelated reasons for the emergence and resonance of PD, particularly in terms of its ties to Latin America (Barranquero & Saez, 2017; Escobar, 2015; Ulloa, 2015). First and foremost, PD was triggered by the expansion of the extractive economy by neoliberal and later progressive governments in the region elaborated to feed exports. Ecologically devastating activities such as large-scale surface mining, the petrolization of the Amazon, and the spread of single-crop GMO farming led to conflict over natural resources and the health and wellbeing of ecosystems. This increased public debate while mobilizing popular resistance, particularly by the indigenous communities that lived within the ecosystems under assault. According to Uruguayan political ecologist Eduardo Gudynas (2011, 2018), these extractivist development activities not only extended dependency but reproduced inequities and human rights violations (e.g., restrictions on the right to information, civic participation, the invasion of indigenous lands). They also set the stage for violence against those defending the rights of Nature.

Second, as a development discourse, PD surfaced because, despite of some CDSC's achievements, the root causes of social and environmental problems were often left unaddressed. This precipitated a shift toward civil society groups and away from official development processes based on governance structures, hierarchy, participation, decision-making, and human–nature relationships grounded in capitalism—a system designed to fulfill expansion and domination over the natural world (Hollender, 2015).

Third, PD emerged at the heart of a Latin American wave of research in which scholars were engaged in new ways of understanding the region's postcolonial status (Mignolo, 2007). Just as Latin American scholars were central to the transformative shift in thinking from the modernization paradigm to the participatory, praxis-centered models of CDSC, the environmentally engaged thought emanating from the region has fueled what is now steering a "bio-centric turn" in scholarship centered on language and cultural memory. Beling et al. (2018, p. 2) assert that PD scholars such as Colombian anthropologist Arturo Escobar were the "first to fundamentally question the socio-economic model of the global North," as they charged that "such a model is a mental, cultural and historical construct that has colonized the rest of the world and needs to be deconstructed, opening up, instead, a matrix of alternatives."

The confluence of extractivism's devastating ecological impact, the shift toward civil society, and the rise of PD in Latin American intellectual circles and political life led to what Escobar (2015) sees as the two fundamental challenges to prevailing CDSC models: First, the broad rejection of the Western notions of "growth," "progress," and other entrenched tropes of development ideology, which center on material accumulation and the commodification of Nature, and privilege European and Anglo-American expertise and technocracy. Second, the radical notion can elaborate understandings of development by drawing from non-Western concepts of what constitutes a thriving society.

One of the strongest sources of PD thinking in recent years has been its engagement with Buen Vivir ("Good Living" or "Living Well"), a stream of thought with origins in Ecuador, Bolivia, and Peru, and inscribed into the Ecuadorian Constitution in 2008. Buen Vivir has drawn attention from scholars, politicians, and activists, and the debate surrounding a nuanced and inclusive definition of it has been fierce, generating a minor industry of scholarship marked

by disagreement and fears of political appropriation. Walsh (2010) argues that in the most general sense, Buen Vivir "denotes, organizes, and constructs a system of knowledge and living based on the communion of humans and nature and on the spatial-temporal-harmonious totality of existence" (p. 18). Gudynas stresses that Buen Vivir is not a universal model but a plural concept built on a set of particular and contextual imaginaries. While it is grounded in and recovers many of its underlying concepts and practices from indigenous cosmologies, it has also formed via non-indigenous influences, such as the Nature's Rights environmental discourses emanating from the West (Gudynas, 2011, 2018). In their detailed genealogy of Buen Vivir, Hidalgo-Capitán and Cubillo-Guevara (2017, p. 25) assert that while there are different versions of the concept, most scholars would agree that it can be defined as "a way of living in harmony with oneself (identity), with society (equity) and with nature (sustainability)." They also note that when considered from the ecologist-development lens of Buen Vivir scholarship, it can be understood as an anti-neoliberal discourse that conceives Western modernization as a form of domination, and so rejects the notion that development is a social aspiration where Nature is a commodity to be used to drive "growth."

Emerging from this vigorous interrogation of the epistemological contours of Buen Vivir has been some noteworthy interventions by communication scholars which offer frameworks for bridging the gap between development and environmental communication (Arcila Calderón, Barranquero & González, 2018). Barranquero and Sáez (2017) offer a particularly ambitious one, positing that Buen Vivir should be understood as a way to engender a renewed vision of CDSC, which they map out through a number of interrelated considerations. For starters, since Buen Vivir is a reaction against the capitalist system itself, a "good living" approach to CDSC would recast how poverty and exclusion are understood. In short, models for solving poverty via instruments derived from the dominant neoliberal structure would be replaced with cooperation programs pursued through the lessons of participatory communication and its emphasis on community praxis. However, in this Buen Vivir-inflected version, praxis would be tied to Nature/culture assemblages and the decommodification of wellbeing. To achieve this, Barranquero and Sáez (2017) present a number of paths forward for integrating Buen Vivir premises into CDSC practice. These include:

- Drawing from Buen Vivir to realize that "many communities need communication not to develop, grow, or evolve in any direction or goal, but to proceed toward a broader and all-encompassing human coexistence with the natural and material environment" (p. 437).
- Embracing Buen Vivir reasserts the ideal of communication as dialogue and network-building (between the human being and the natural and material surrounding), thus helping CDSC "get rid of any adjective or label— such as participatory, for development, for sustainable development—realigning it from its subordinate position (*for*) to the core of the disciplinary relation" (p. 438).
- Following the Buen Vivir proposition that CDSC should not be a matter of the North "modernizing" the South in its image, but rather the adoption of a position of self-containment based on human austerity and degrowth that shift the focus to the excesses of the North as opposed to the scarcity of the South. This would necessarily involve a

> Socio-ecological readjustment in the Global North in order to adequately redistribute the control and use of the planet's resources…among its inhabitants …, as well as to respect the biosphere limits and the regenerative capacities of the planet.
>
> *(p. 438)*

As Barranquero and Sáez's work suggests, Buen Vivir is both inspiring and confrontational in that it requires CDSC to take seriously the question of people's relationship with the earth through decolonial and bio-centric lenses. As the authors point out, given its prominence within Latin American intellectual and political life it also provides an opportunity to answer the call of past communication scholarship to de-Westernize CDSC (Dutta, 2011; Manyozo, 2012; Melkote & Steeves, 2001). Following PD and Buen Vivir, this should include confronting the conditionality of growth through a better understanding of interculturality, indigenous cosmovisions, and non-modern ways of life as that can help foster a de-naturalization of capitalist logic and the rethinking of what constitutes a resource (Álvarez & Coolsaet, 2018; Arcila Calderón, Barranquero & González, 2018; Castro-Sotomayor, 2020; Murphy & Castro-Sotomayor, 2020).

## Conclusion

This survey of these branches of the CDSC "family tree" (Waisbord, 2001) reveals that the field shares many points of convergences with environmental communication, not the least of which are participation, citizen engagement, public consultation, sustainability, social justice, and cultural knowledge and that CDSC is moving toward more ecologically-centered terrain. While the early phase of modernization theory was economically and politically oriented, avowedly Western in its cultural orientation and grounded in a Promethean vision of growth, its central place within CDSC has waned. In its place other, more progressive, citizen-centered, and multi-stakeholder models of development envisioning multiple modernities have become established, which provide much greater possibilities for addressing environmental issues at the community level, and even aligning with environmental activism. The key features of these models in relation to Nature, agency, and central modes of communication are summarized in Table 5.1.

As the table shows, participatory communication, SD, and post-development have different ways of understanding the human–nature relationship, but do share some characteristics and points of overlap, particularly the centrality of horizontal communication. Collectively, considering the plethora of environment antagonisms around the world and the existential threat of anthropogenic climate change, the emphasis on governance-as-process (PD/PEC), evolvability, and the right to information (SD/ESD), degrowth, and Nature's rights (PD/BV) from these progressive paradigms may be the most crucial contributions to the "greening" of CDSC. To put these contributions into perspective, one only has to remember that some of the consequences of climate change are already here (e.g., heat waves and drought, sea level rise, flooding, increased wildfires, mass extinction of flora and fauna, the exponential growth of public health issues) and being experienced most profoundly by the world's poorest and most marginalized. And of course, other challenges remain, as the progressive models are still enmeshed within a geopolitical landscape where "a globally organized liberal capitalism mostly insensitive to environmental concerns is the dominant political fact of our time" (Dryzek, 2013, p. 235). Within this context, "participation," "sustainability," and even "good living" are always vulnerable to co-optation by the development industry and other interests. Yet as has been explored in this chapter, despite the overwhelming weight of neoliberal globalization, there are encouraging signs within the field of CDSC that different, more ecologically oriented paths for development are not only possible, but already being charted.

*Table 5.1* Defining features of CDSC in relation to nature and human–nature relationships

| CDSC Model/Paradigm | Key Terms, Guiding Concepts | Agents; Communication Mode | Place of Nature; Human–Nature Relationship |
|---|---|---|---|
| Modernization/Diffusion of Innovation | modernization; growth; progress; innovation | elite experts; technocrats; change agents; vertical (top-down) | Nature material resource/only brute matter; anthropocentric People as entrepreneurial agents, extract from Nature to feed human needs |
| Participatory Communication (dominant paradigm) Participatory Environmental Communication (emergent) | governance-as-process; praxis; dialogue; voice; civic engagement; "knowledge-as-emancipation"; contestation  governance-as-process; equity; diversity; networks; access; place-based knowledge; environmental citizenship | the self-aware citizen; community; bilateral & multilateral agencies; horizontal environmentally-aware citizens; community; bilateral & multilateral agencies; horizontal | Equity among people, mostly silent of nature; anthropocentric Nature has intrinsic value; remains anthropocentric but moving toward ecocentrism People as citizens, community members have moral responsibility to ecological limits |
| Sustainable Development (dominant paradigm) Culturally-centered Sustainable Development (emergent) | sustainability; evolvability; relative limits; conservation; sharing culture, right to information; women's rights; dialectical process; partnerships; "middle way;" alternative communication | international governmental organizations; nongovernmental organizations (NGOs); top-down multidimensional; bilateral & multilateral agencies; vertical and horizontal | Nature as capital, subordinate to human needs; anthropocentric Nature's value conditioned to human's needs; anthropocentric People as cultural beings, humans have moral responsibility to ecological limits |
| Post-development/Buen Vivir | plurality; degrowth; anti-neoliberal; decolonial; transition; Nature's rights; human–more-than-human relationships | communities; territories; ecosystems (Nature) horizontal | Nature has intrinsic value; ecocentric People as ecological beings, humans have responsibility to Earth and more-than-human world; Nature part of community. |

## Acknowledgements

## Further readings

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This article provides an excellent overview of the historical and theoretical foundations of Latin American scholarship that have shaped how CDSC is understood in the region, particularly in relation to more recent debates that have taken a turn away from western frameworks and toward indigenous epistemologies and biocentric thinking.

Harris, U. S. (2019). *Participatory media in environmental communication: Engaging communities in the periphery.* New York: Routledge
Based on in-depth ethnographic research in Pacific island communities that have directly experienced the impacts of climate change and other ecological traumas, this book examines how participatory communication has been used by to create awareness, build networks, increase knowledge-sharing, and find solutions to profound environmental challenges.

McAnany, E. G. (2012). *Saving the world*: *A brief history of communication for development and social change.* Urbana: University of Illinois Press.
Equal parts history and analysis, this book chronicles the emergence of CDSC by one of its leading scholars.

Servaes, J. (Ed.) (2013). *Sustainable development and green communication: African and Asian perspectives.* New York: Palgrave
Grounded in case studies from Africa and Asia, this edited collection explores the relationship between communication and sustainability through the lens of CDSC theory and practice.

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## PART II

# Producing environmental communication

## Sources, communicators, media and media professionals

# 6

# WHEN ENVIRONMENTAL SCIENTISTS GO PUBLIC

*Sharon Dunwoody*

When wildlife ecologist Stan Temple decided to reconstruct the morning sounds of birdlife captured in the notes of Aldo Leopold some 70 years ago, at the ecologist's iconic shack in south central Wisconsin, he knew he was onto something interesting but had no idea how dramatic the public response would be.

On many mornings in the 1930s and 1940s, Leopold would rise before dawn, settle onto a bench near the shack—a former chicken coop converted into a rustic but beloved get–away cabin for his family of six—and meticulously identify the trills and squawks of awakening birds as the sun rose. Temple, a University of Wisconsin-Madison emeritus professor of forest and wildlife ecology and now a senior fellow at the Aldo Leopold Foundation, enlisted the help of an acoustic ecologist to recreate a "soundscape" from those handwritten notes.

The resulting five minutes of sound (http://www.news.wisc.edu/21058) is the first historical soundscape to be derived from a written account rather than a tape recording, noted Temple. The mix of species that Leopold heard back in 1940 differs from those heard today thanks to many factors, including climate change. But most striking in the comparison is the human presence that overwhelms the 21st-century soundscape. A recording taken at the shack today is dominated not by birdsong but by the rumble of cars speeding along a nearby freeway.

Temple's soundscape captured national attention, and he was inundated with requests for interviews. Although he admits the experience was time–consuming, Temple also feels that interactions with journalists and the public are an important part of his work *as a scientist*.

Is Stan Temple unusual in this respect, or does his embrace of public communication and engagement typify scientists generally or, perhaps, environmental scientists more specifically? This chapter will try to answer those questions, first with a brief look at the history of the relationship between scientists and the public and then, through the lens of available literature, by drawing a current portrait of that relationship.

But first, let me give away the denouement. While the historical record paints a picture of a sometimes tense and volatile relationship between scientists and both journalists and the public, data gathered over several decades suggest that the relationship is cyclical and that today's scientists are engaged in increasingly productive interactions with reporters and lay audiences. Further, environmental scientists may serve as the poster children for this rapprochement with the public, thanks to the explosion of interest in environmental issues

among publics and policy makers over the past 50 years that drew these scientists into the public discourse. That said, though, a relationship that—way back in the 19th century—might have characterized the scientist as one among equals in a community—remains strongly hierarchical today, with scientists repeatedly affirming their status as "experts" who believe in a mandate to "educate" the public even in the face of increased calls for scientists to engage with non-scientists in more interactive and reciprocal ways.

## A brief history of scientist/public interactions

British journalist-turned-academic Peter Broks captures the historical thread of this relationship in his 2006 volume *Understanding Popular Science*. It is a saga that has caught the attention of others as well, among them U.S. historian John Burnham, who described the American experience in an earlier book, *How Superstition Won and Science Lost: Popularizing Science and Health in the United States* (1987).

Both authors track a large cycle that begins, in the 19th century, with efforts by scientists and lay individuals to embed science in the warp and woof of daily life. Scientific discovery was recognized early on by lay people as a source of both practical information and wonder, and 19th-century scientists additionally understood that, as members of a newly minted occupation, they needed all the help they could get.

Secord (1994), for example, examined the ways in which trained botanists and "working-class naturalists" together constructed the practice of "scientific botany" in early 19th-century England. Plant knowledge was important to artisans and farmers, and early botanical societies met regularly to view plant specimens and to borrow or return books purchased through monthly dues. Both artisans and more highly educated scientists benefited from these meetings, noted Secord. The sessions "not only fulfilled a didactic purpose," she explained, "but also allowed the more expert botanists to accumulate information rapidly" (p. 283), for example, through the discovery of rare specimens on farmers' lands.

But by the end of the 19th century, in both Europe and the U.S., science had become the domain of the "expert." Broks explains that public audiences were no longer viewed as participants in the construction of knowledge but, instead, as passive information receptacles and, if properly "educated," as potential cheerleaders for science. Professions of all kinds were developing during this era, and scientists embraced professionalization with great energy, creating scientific societies, specialized educational requirements, and internal systems of rewards and punishments. Professions also demand a distinction between "us" and "them," and that delineation meant that scientists withdrew from the pub and from the author listings of popular science magazines and, instead, embraced the notion of "expertise" as a condition that set them apart from others.

By the 20th century, the chasm between "us" and "them" was so wide that popularization had become anathema for many scientists. The scientific culture not only failed to provide rewards for interacting with publics but also actively punished scientists for doing so. I recall when, as a writer for a U.S. medical center in the 1970s, I learned of a productive researcher at the hospital who had run afoul of norms restricting scientific popularization. His research had been the subject of a story in the local newspaper at one point. Some months later, his application for membership in an honorific scientific society was rejected. The society noted that the newspaper story, while accurate, had identified the researcher by name and that such identification constituted "unethical advertising." The society advised the scientist to avoid such lapses in the future, making a subsequent application more likely to succeed.

Scientists who nonetheless braved the waters of popularization found negotiating the resulting public visibility with their colleagues to be rough going. Scholar Rae Goodell interviewed a number of these individuals for her book *The Visible Scientists* (1977) and found them to be committed to the public's understanding of science but subject to withering criticism from the scientific culture. Those critics lambasted the "visible scientists" for such things as spending too much time talking to the public at the expense of their research and for speaking out about issues beyond the purview of their expertise. Among her "lab rats" were a number of environmental scientists, including Paul Ehrlich and Barry Commoner.

In the 21st century, however, the cycle has come full circle. Despite continued reservations (Rödder, 2012), scientists have emerged from their professional cocoons and are once again actively engaging audiences of all kinds, from children to adults to industry CEO's. They are investing in communication training and are devoting considerable time and effort to products—documentaries, trade books, blog posts, congressional testimony—that historically have not "counted" toward scientists' climb up the professional ladder. I will share some of the factors that prompted this change below. But first, I would ask if these trends have affected environmental scientists in the same way as scientists in other disciplines.

## Environmental scientists as early popularizers?

Wildlife ecologist Stan Temple, with whom I opened this chapter, acquired his training when scientists' avoidance of public activity was at its height in the U.S. Yet even as a graduate student, he recognized the potential value of his work to publics outside science, and he did not hesitate to wade into the public arena to share what he learned.

Was Temple the young ecologist choosing a risky path, or did circumstances in the mid-20th century actually encourage environmental scientists to engage with publics? Was Temple jumping into the public arena at a preternaturally early stage of his career, or was he part of a cohort of environmental scientists who may have pioneered public engagement and visibility decades before mainstream "science" came back to the table?

Sociologist Dorothy Nelkin might have opted for the latter position. In an analysis of experiences of American ecologists, Nelkin fingered the environmental movement of the 1960s and 1970s as a critical catalyst for public engagement. "As the expertise of ecologists was perceived as a social resource, relevant to a major problem," she wrote, "scientists were thrust into the political arena, forced to face many of the issues and implications of social responsibility" (Nelkin, 1977: 75). During this same period, Nelkin explained, universities established environmental courses and programs, and many leading scientists known primarily as scholars began writing popular trade books and giving public lectures.

The passage into U.S. law, in 1970, of the National Environmental Policy Act and, in 1973, of the Endangered Species Act mandated increased scientific involvement in policy making. As a result, ecologists were called on more and more frequently to apply their research skills to policy decisions.

There were costs, of course, both actual and perceived. Ecologists worried in the 1970s that such intense involvement in public problems would erode their autonomy as researchers and would make applied research more valuable (read: more likely to be funded) than basic scholarship. Nelkin also explained that, since societal problems typically play out at an ecosystem level rather than at more micro, biological levels where much basic research takes place, ecologists feared that the research on the complex, large-scale processes needed for policy decisions was premature and would fail.

Despite such ambivalence, many ecologists stepped into roles of increased social responsibility during the period and, in doing so, got a jump on many other disciplines in the scientific culture. It is possible that, even now, ecologists may be called on more frequently than scientists in other disciplines to help solve problems.

Thus, it appears that Stan Temple was not unusual. As a graduate student at Cornell University, Temple signed on with an adviser, Tom Cade, whose awareness of the dire straits of one of his favorite birds led the senior researcher to establish an organization called "The Peregrine Fund" (https://peregrinefund.org/) to raise money to support his conservation work. (Peregrines are smaller, aerodynamic falcons whose reproduction crashed in the 1960s when the accumulation of DDT in their tissues caused eggshells to thin and eggs to break.) Temple devoted himself to studies of peregrine recovery strategies and soon found his work attracting the interest of major American media and even the likes of the iconic CBS news anchor Walter Cronkite, who on one national program featured Temple and his efforts to reintroduce juvenile peregrines to the wild.

Although current data on the frequency with which environmental scientists connect to the public appear to be limited, the few available studies suggest that these scientists remain popular sources for the public. For example, Jensen (2011), in a study of the popularization practices of French scientists, found great variation in the level of activity by discipline, with environmental scientists second only to social scientists in the number of study participants who had engaged in at least one popularization activity in the previous five years. Specifically, three quarters of the environmental scientists indicated they had been so engaged. In contrast, 61.3% of physicists and 45.2% of biologists claimed similar levels of activity. Similarly, in a study of Spanish scientists, Torres–Albero et al. (2011) found that those focusing on natural resources had more journalistic encounters and more "open door events" (p. 19) than did other types of scientists.

Still, many environmental scientists eschewed public communication during the heady period of the 1960s and 1970s, and it is likely that many still prefer the anonymity of the lab or the forest depths even today. The extremely complex nature of environmental "truths" continues to lead scholars to recommend that scientists in this field proceed carefully when communicating with the public and with policy makers (Backhaus and Seiler, 2016; Janse, 2008; Kriebel et al., 2001; Seiler et al., 2013). Such advice clearly has not prevented environmental scientists from stepping into public and policy domains. Below, I take a look at some characteristics of their presence.

## Seniority is now less important

One recurring pattern across time and scientific disciplines is that senior scientists and those who have moved into leadership positions have been more likely to interact with publics than more junior colleagues (see, for example, Bauer and Jensen, 2011; Boltanski and Maldidier, 1970; Dudo et al., 2018; Kreimer et al., 2011; Peters et al., 2008a). Bentley and Kyvik (2011), for example, surveyed scientists in 13 countries and found that those researchers with popular publications on their CVs also had achieved higher academic rank and had published more in peer-reviewed journals than did researchers who don't popularize.

This pattern has begun to shift, as younger scientists have taken to public engagement in increasing numbers. For example, Besley (2015) found that younger scientists were more likely to express a willingness to engage with audiences outside the classroom than were more senior colleagues. A survey of more than 6,000 scientists in U.S. universities also found that younger scientists judged public communication to be more important than did

older scientists (Rose, Markowitz and Brossard, 2020). Greater facility with online channels and social media is likely playing a role; in one study (Besley et al., 2018), younger scientists proved more willing than older scientists to engage with various publics in online channels. We will take a closer look at the use and impact of social media later in this chapter.

## Communication training increases willingness to engage

Formal scientific training typically excludes skill-building in a variety of ancillary fields. For example, scientists are increasingly expected to behave like entrepreneurs when soliciting support and starting companies but rarely receive formal preparation to do so. The collaborative nature of the scientific process makes interpersonal skills critical, but scientists in training are rarely exposed to that domain in a systematic way. Similarly, while scientists write for a living (your exciting finding is deemed "science" only when it has been vetted by your peers and published in a journal), they often must settle for a kind of experiential learning by doing. While such training sometimes (but not always!) provides the skills needed for clear, facile writing, the construction of popular narratives is almost never a part of that experiential diet.

The interdisciplinary nature of ecological training—which privileges problem-solving across disciplines and scientific languages—may give environmental scientists better access to communication skill-building during their student years than is available to other science students. But the environmental science community itself has continued to acknowledge a serious training deficit (see, for example, Brunson and Baker, 2016). Science communication trainer Nancy Baron, in an essay in the journal *Nature*, warned that "for scientists who would be agents of change, communication is not an add-on. It is central to their enterprise" (Baron, 2010: 1032).

We don't know how many environmental scientists are taking advantage of communication training opportunities, but we do know that such training is related to scientists' popularization attitudes and activities. For example, in a survey of epidemiological and stem cell researchers in the U.S., formal training in communication—via such mechanisms as workshops, internships, and formal courses—was one of the strongest predictors of the frequency of media contacts (Dunwoody, Brossard and Dudo, 2009). Training also may have an indirect impact on an important predictor of willingness to engage: self-efficacy, the perception that one can accomplish a communication goal skillfully. An analysis of members of the Royal Society in the UK, for example, found that scientists' perceptions of their ability to engage effectively with lay publics were related both to their willingness to do so and to the frequency with which they did so (Besley, Oh and Nisbet, 2013). And a survey of more than 500 scientists at more than 60 U.S. universities found that communication training led to greater levels of self-efficacy, which in turn led to increased willingness to engage with publics (Copple et al., 2020).

## The rewards for public engagement are increasingly apparent

The fallout from public communication activities has unavoidable impacts on scientists' attitudes and behaviors. Scholars have long assumed that the most powerful influences are negative, that is, that scientists calibrate their popularization activities more in response to potential negative feedback than to positive feedback. And indeed, scientists' recollections of impacts have long highlighted the negative: the scientist who felt "burned" by an inaccurate media account that generated criticism from her peers, the perception that public

communication activities have little to no impact on one's merit evaluations, the political pushback that can stem from public dissemination of research related to controversial scientific and environmental issues.

Wildlife ecologist Stan Temple can serve as our poster boy once again: For more than 25 years, he has been studying and speaking out about the toll that cats allowed to roam the great outdoors take on wildlife, particularly birds. Although he makes clear that he does not shrink from sensitive topics, he admits that the fallout from his cat work has been his "hardest experience." Ad hominem attacks sometimes escalated into death threats; one threat was sinister enough to warrant police action.

However, recent research suggests that today's scientists also believe that public communication can bring rewards. And they are right.

Most of these benefits stem from the social legitimacy that public visibility can confer. Widely disseminated information about an environmental scientist's work can be a powerful signaling mechanism. At the least, it suggests to audiences that *this* research is important, worth one's attention. Although one cannot guarantee who will pick up the message, empirical work suggests that public visibility can positively influence potential funders and can make a scientist's research seem more salient to publics and to policy makers.

Even more interesting, however, is that this legitimizing function seems to work in similar ways within the scientific community itself. Although only a few studies have examined this phenomenon, they find that research featured in the mass media is accorded more weight within the scientific culture. Here are a couple of patterns found by these studies:

- *Folks seeking to follow up on a media story about your research are predominantly experts with an interest in the topic.* Many scientists acknowledge that public dissemination of their research can produce large numbers of requests for interviews, additional information, and copies of the study. But while many scientists would blame journalists and the public for that labor-intensive aftermath, a few studies have found, instead, that contacts come primarily from other scientists. I used myself as a guinea pig at one point when a study that I conducted on public perceptions of AIDS—then a new and scary phenomenon—got a lot of media attention. I kept a log of subsequent contacts and found that, some two weeks after the story broke, contacts from social scientists and health policy experts seeking further information about the study began to dominate. Ultimately, those more specialized audience members generated nearly two-thirds of the information requests I received (Dunwoody, 1993).
- *Publicly visible research gets cited more often in the scientific literature.* A study that compared two sets of articles published in the *New England Journal of Medicine*—one set that received coverage by *The New York Times* and another, matched set that did not—found that the former were cited 72.8% more often in the scientific literature than were the latter (Phillips et al., 1991). A subsequent study that included a broader array of journals, articles, and media outlets found that publicized research was cited 22% more frequently by other scientists (Kiernan, 2003). A similar pattern related to social media visibility is described below.

Today's scientists certainly understand that public visibility can have both good and bad outcomes. But recent studies find that perceptions of the value of these experiences now trump perceptions of their debits. For example, a five-country study of biomedical research scientists found that three quarters of the respondents chose the response "mainly good" when summarizing their experiences with the media in the past three years, and more than

half (57%) indicated they were "mostly pleased" with "their latest appearance in the media" while only 6 percent said they were "mostly dissatisfied" (Peters et al., 2008a, 2008b). Similarly, more than half (62%) of the scientists in a Danish study acknowledged that media encounters were good for their careers (Wien, 2014).

Additionally, although the apparent value of visibility to scientists' careers could easily become scientists' primary *raison d'etre* for seeking public attention, the scientists in several recent studies instead seemed to embrace more "intrinsic" motives. An analysis of U.S. scientists, for example, found that the only "reward" that accounted for significant variance in scientists' frequency of interactions with the media was a measure of their level of enjoyment in explaining their research and its implications to the public (Dunwoody, Brossard and Dudo, 2009).

## Do scientists pay a price for advocacy?

Many in the scientific community have long assumed that the cultural authority of science depends on scientists' efforts to separate what science "knows" from what science "recommends." In this view, science maintains credibility by sharing what it learns while keeping its distance from policy involvement. In O'Brien's description of this pattern.

> If scientists appear to be self-serving, then individuals may be less supportive of the use of scientific expertise as a basis for public policy decisions. If, however, scientists appear to be personally disinterested…, then individuals may be more supportive of lawmakers' reliance on scientific knowledge across a range of policy topics.
>
> *(O'Brien, 2013: 802)*

Some reactions to scientists' involvement in policy reinforce perceptions of the importance of maintaining that "disinterested" focus. For example, a study of "rhetorical archetypes" that dominated congressional climate change hearings in the U.S. found scientists accused of skewing their science for political reasons and speaking to research needs in order to garner continued funding for their work (Cloud, 2020). Concern about the politicization of their work leads many scientists to eschew comments that could be interpreted as "advocacy." Environmental scientists involved in the Long Term Ecological Research (LTER) Program at a site in Oregon, for example, preferred an interpretive role (explaining their science to policy makers) over any type of advocacy role (Lach et al., 2003).

However, the insistence on disinterestedness has come into increasing conflict with arguments that being a responsible scientist requires individuals to apply what they know to real-world problems, to both advocate for the use of science in policy making and to enter the policy making domain themselves. Meyer et al. (2010) argue that environmental scientists can maintain objectivity while also taking on the role of advocate.

That challenge resonates with many scientists today. A survey of participants at nine conservation- and ecology-related conferences found "a prevailing belief among those in environmental science and policy that scientists should engage in science interpretation, integration, and even advocacy" (Singh et al., 2014:164). Nearly all respondents in a survey of delegates at a Marine Protected Area Congress supported scientists becoming active in policy making (Gray and Campbell, 2009), as did respondents to a survey of Australian marine scientists (Cvitanovic et al., 2015). And a 2015 survey of members of a large U.S. science organization found that more than 80% of respondents agreed with the statement that "scientists should take an active role in public policy debates about issues related to science and technology" (Pew Research Center 15 February 2015).

Does engaging in advocacy communication diminish an environmental scientists' cultural authority? The answer, not surprisingly, is "it depends." Results from one public survey found variance by issue: While the perceived credibility of the scientist-source remained high across an array of advocacy statements, statements advocating for one issue—more nuclear power plants—did diminish those perceptions (Kotcher et al., 2017). This suggests that the politicized nature of an issue can muddy credibility judgments. Gauchet et al. (2017) found that while perceptions that a scientist understands the science of climate change and has the best interests of the country at heart bolster public judgments that scientists should be more influential in climate change policy, respondents with conservative political beliefs were less certain of scientists' integrity and would accord them less influence.

## The medialization of environmental scientists

In recent years, the study of scientists' relationships with the media has become dominated by the concept of medialization, a process described as the increasingly intense orientation of science to mass media practices (For an extended explication of the concept, see Rödder et al., 2012). Driven by the increasingly tight coupling of science to political, economic, and media systems, the "medialization" of science suggests that scientists build public visibility and legitimacy by adhering to what "counts" in journalistic work—i.e. novelty, a focus on events, an emphasis on the applied rather than the basic. These adaptations to journalistic work patterns (Bucchi, 2013) may even lead scientists to modify their own behaviors to encourage (or discourage) coverage of their work (Peters, 2012; Rödder, 2009).

While I would argue that the process of scientists aligning their communicative efforts with journalistic norms was spotted long before the term "medialization" came into vogue—see, for example, Blumler and Gurevitch's development of the concept of a "shared culture" between journalists and sources (Blumler and Gurevitch, 1981)—studies indeed seem to suggest that scientists are increasingly open to the incorporation of journalistic practices into decisions they make about research processes (Dudo, 2012) and that their beliefs that media coverage is influential increases their motivation and efforts to obtain media visibility (Tsfati et al., 2011). A sense of public responsibility also seems to be an important factor in driving susceptibility to journalistic and societal norms. Swedish environmental scientists, in a recent survey, said that they ponder the social and environmental impacts of their work frequently and that their research choices are influenced by those considerations (Rosenlund et al., 2017).

But a look at underlying principles driving scientists' behaviors reminds us that scientists remain committed to a level of societal interaction that maintains a clear distinction between "them" and "us." Interviews with Dutch plant scientists indicated that, while the scientists tolerated lay views about science and its impacts, they also were quick to criticize the scientific value of those views (Mogendorff et al., 2012). Noted the authors.

> Displays of tolerance in our data seem to indicate here that scientists are concerned about the societal image of their research to some extent; they show with their displays that they do care about lay views but that they do not necessarily need to involve laypeople or their views in their research practices.
>
> *(p. 744)*

In a recent study of German climate scientists, Ivanova et al. (2013) found the extent of medialization to differ significantly among subgroups in their sample. It is the younger, less

experienced scientists, they found, who are adapting to media norms. Rödder and Schäfer (2010) also caution that the extent of medialization in science appears to be "much less pronounced" (p. 260) than in other societal domains such as politics and sports.

## The rise of social media use

When it comes to legacy media coverage, Metag notes that public visibility is typically a function of reputation, resources, and communication skills (Metag, 2020). In contrast, the burgeoning use of the internet and social media by scientists weakens the constraining role of reputation and increases the risk of uncontrolled visibility. For example, although professionally produced science videos outnumbered those produced by amateurs on YouTube in one study, the user-generated videos garnered more views and subscriptions than did the ones created by more professional organizations (Welbourne and Grant, 2015). And Allgaier (2019) found that more than 90%of YouTube videos resulting from a search on the terms "geoengineering" and "climate modification" promoted "chemtrail" conspiracy theories rather than valid scientific information.

This has not prevented environmental scientists from taking advantage of the opportunity to communicate directly with a variety of audiences via the many channels now available to anyone with only modest software and training. A recent analysis of South African scientists' use of Twitter to communicate about their research found that ecology and the environment were among the topics receiving the highest volume of tweets (Joubert and Costas, 2019). Among scientists and across online platforms more generally, willingness to engage was found in one study to be related to perceived time availability and to a desire to contribute to public debate (Besley, 2015).

The impacts of social media use by scientists, particularly messaging effects on public knowledge and attitudes, are still in the initial stages of exploration. However, it is increasingly evident that, in a world where knowledge production and peer recognition remain fundamental to success in the scientific culture, the availability of social media channels is fostering opportunities for increased visibility among scholars. (For an extended discussion of this shift, see Desrochers et al., 2018.) For example, scientists' tweets seem to be followed primarily by other scientists (Côté and Darling, 2018; Walter et al., 2019). One study of U.S. nanoscientists found that both interactions with journalists and mentions on Twitter were positively related to metrics tracking productivity and citation impacts (Liang et al., 2014). And several studies find that tweeting about one's research in environmental sciences and ecology increases one's citations in the peer-reviewed literature (Finch et al., 2017; Lamb et al., 2018; Peoples et al., 2016).

## In conclusion

In *Flight Behavior* (2012), a novel by Barbara Kingsolver that exemplifies a new subgenre called "climate fiction"—clifi for short—interactions between environmental scientists and journalists do not go well. In the book, millions of Monarch butterflies are attempting to winter over in the trees of Tennessee, halfway down the length of the U.S., rather than in their historic forest roosts in Mexico much further south, and entomologist Ovid Byron has set up a small laboratory to document factors that might be behind the troubling shift. When television reporter Tina Ultner tries to interview him about the "beautiful phenomenon" (p. 364) of tree branches draped in vivid, living orange, the interaction rapidly deteriorates. "Tina," retorts Byron, "to see only beauty here is very superficial. Certainly in terms of news

coverage, I would say it's off message" (p. 365). Moments later, Tina's refusal to accept global warming as a factor leads to an abrupt end to the interview, with Byron claiming: "You have no interest in real inquiry" (p. 369).

Entomologist Ovid Byron displays all the characteristics of the classic, wary scientist who is reinforced in his belief that only bad things can come from journalistic encounters. And although this episode encourages an interpretation of the scientist as heroic, as a truth seeker unwilling to "dumb down" his work for a reporter only interested in sensationalizing the science, I think many modern-day ecologists would eschew that role. Like wildlife ecologist Stan Temple, they instead view interactions with journalists and with the public as important means of leveraging both public understanding and their own legitimacy as scientists.

This doesn't mean that environmental scientists have embarked on an unfettered dash to become household names. History suggests that they have long worked to make outreach and public communication an outcome of high-quality science rather than a driver *per se*. As Temple noted, when asked how he had achieved success as a public figure without putting his scientific career at risk: "The credibility of my research among my peers was always paramount. If my research resulted in findings the public wanted and needed to hear, I wasn't shy about getting the word out, but that was always a secondary goal."

Yet as strategic and sophisticated as scientists have become as public communicators, research suggests that most continue to hew to a fairly hierarchical notion of their relationship with the public. Peters, in an overview of research on scientists' relationships with the media and with publics, concluded that today's scientists continue to embrace "the dominant view" of these relationships, a view that assumes *scientific* communication and *science* communication are two separate domains and that, while scientists can be effective in public communication, lay audiences are not legitimate players on the scientific side of the ledger (Peters, 2013). In a survey of members of a large scientific society in the U.S., Dudo and Besley (2016) found that respondents' primary goals for public engagement were defending science against misinformation and—you guessed it—public education.

The internet and social media, however, have vastly increased public access to scientific information of all kinds, leading some scholars to posit "the possibility of the permeability or even collapse of the distinction between the visibility of scientific knowledge in the scientific system and its visibility to the general public in the digital information environment" (Metag 2020: 9). To the extent that environmental scientists seek to maintain control over their "educational" interactions with the public, the plethora of new channels will provide as many challenges as they will opportunities.

## Further reading

Besley, J. C., Dudo, A., Yuan, S. and Lawrence, F. (2018) "Understanding scientists' willingness to engage," *Science Communication*, 40(5): 559–590.
Surveys of members of seven scientific societies in the US found that the primary predictors of willingness to interact with journalists, engage in communication via online channels, and meet face to face with nonscientists were beliefs that the scientist would find the experience enjoyable, could make a difference, and had the time to engage. Ecological scientists seemed to be more willing than those in other disciplines to meet nonscientists face to face.

Kotcher, J. E., Myers, T. A., Vraga, E. K., Stenhouse, N. and Maibach, E. W. (2017) "Does engagement in advocacy hurt the credibility of scientists? Results from a randomized national survey experiment," *Environmental Communication*, 11(3): 415–429.

A randomized online survey experiment tested Americans' reactions to climate change advocacy statements credited to scientists. Findings suggested that scientists who wish to engage in certain forms of advocacy (although supporting the construction of nuclear power plants to battle climate change did not fare well) can do so without risking harm to their credibility or to the credibility of the scientific community.

Peters, H. P. (2013) "Gap between science and media revisited: Scientists as public communicators," *Proceedings of the National Academy of Sciences*, 110(Supplement 3): 14102–14109.
This analysis of a number of international surveys of scientists concludes that scientists overwhelmingly regard media visibility as important both to their perceptions of the public understanding of science and to their careers as scientists. However, the analysis also finds that scientists maintain a "two-arena model" of communication that keeps public communication activities distinct from scientific communication processes.

Rödder, S., Franzen, M. and Weingart, P. (eds) (2012) *The Sciences' Media Connection–Public Communication and Its Repercussions*. Dordrecht: Springer.
What are the impacts of the evolving alignments between science and the public on science itself? This edited book seeks to address that question through a variety of lenses, among them the influence of media practices, of organizational norms, and of popular narratives on scholarly publishing.

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# THE MEDIA/COMMUNICATION STRATEGIES OF ENVIRONMENTAL NGOs

*Robert Cox and Steve Schwarze*

> *Strategic communication, public relations, and advocacy efforts of various stakeholders have … "played a highly significant role in the climate change debate"*
>
> —*Schäfer, p. 528, quoting Anderson, 2009*

> *The critical element of an effective media advocacy effort is that it is strategic…*
>
> —*Wallack, et al., 1999, p. 9*

Scholarship on environmental change assumes that activists or non–governmental advocacy organizations articulate their demands via a process of public, communicative actions, and/ or use of media. As Vu, Do, Seo, and Liu (2020) observed, "communication is crucial to activism, whether online or offline, as it is the key to effectively disseminating information, mobilizing resources, and establishing a collective identity," and more (p. 451).

While we agree that uses of media, including digital and online social networks (OSNs) are important, we would add other factors as well. These include struggles over interpretation of messages or frames, the capacity to influence key audiences, organize protest events, and more. The need to respond to such challenges also raises important questions about the *strategic* or ability of environmental non–governmental organizations (ENGOs) and activists to align their messages, choices of media, and audiences with intended outcomes, as well as adapt to contingent events affecting such outcomes.

In this chapter, we summarize research on environmental and climate activists and EN-GOs' uses of different media, including digital media, that are intended to generate publicity, reach relevant constituencies, and other actions meant to affect desired outcomes.

Section "Strategic assumptions and challenges" identifies the role of strategy and the presuppositions about modes of dissemination, audiences, messages, and intended outcomes that constitute the strategic terrain of environmental activists' and ENGOs' communicative practices. Section ENGOs and media research challenges describes recent research on the media practices of these groups, including cultivation of mainstream (print and broadcast) media, strategic uses of digital and social media, media–audience relations, the dissemination of efficacious frames or messages, and alignment of media and desired outcomes, as well as

the responses to contingent events and counter-communication that activists and ENGOs' sometimes face that affect their strategic efforts.

Finally, section "ENGOs and media research challenges" identifies challenges for ongoing research about ENGOs' strategic decisions and uses of different media in a complex and evolving media environment.

## Strategic assumptions and challenges

Like other social movement groups, environmental NGOs often lack direct or non-mediated channels for conveying their demands to governmental, corporate, and other decision-makers. As a result, Hansen (2019) notes, "outsider groups" depend on media for two reasons: "(1) Public publicity—and, crucially, legitimacy—to help recruit members and financial support for the group's campaigning activities, and (2) as the main channel for achieving public and political attention and action regarding the issues on which [they] campaign" (p. 49). In this section, we inquire further into environmental activists and ENGOs' strategic assumptions, generally, and their decisions about media platforms, messages, target audiences, alignment of media and outcomes, and affordances and constraints of digital media and OSNs that constitute the strategic terrain for such groups' media practices.

Although there are numerous studies of ENGOs' media uses, these often are less explicitly focused on the *strategic* rationales of such groups' decisions about their uses of media (although this may be changing, as we note below). By strategy, social movement and media scholars usually mean the use of media "in relation to and in support of, rather than instead of or isolated from," the other elements of a campaign (Wallack, Woodruff, Dorfman and Diaz, 1999, pp. 9, 10); in other words, advocacy strategies generally can be described as "high-level organizing plans [including media] for achieving an organizations' goals" (Gulliver, Fielding, and Louis, 2020, p. 615). An account of an NGO's strategic uses of media, then, is a description of the relationships among specific communicative efforts—choices of media platforms, messages, and relevant audiences—and the intended outcomes or effects within a given system (Cox, 2010).

In accounts of environmental activists and NGOs' media practices, scholars have identified a number of suppositions or recurring challenges that characterize the strategic terrain in which such groups operate:

1   *Visibility: Access to, and attention of media*

The most basic assumption underlying both activists and ENGOs' media strategy, whether understood as access to "old" media or relying upon the affordances of digital media and online social networks, is *visibility*, that is the presence of a means "for achieving public and political attention and action regarding the issues on which [they] campaign" (Hansen, 2010, p. 52). As Hutchins and Lester (2006) observed,

> It is the media that serves as the primary and hotly contested communicative interface – the structuring intermediary – between environmentalists and [others] as they compete for public awareness and approval. The media is more than a site for environmental action; it plays a significant role in shaping debate and influencing outcomes.
>
> *(p. 438)*

(While access to media is a basic assumption of media strategy, below we will distinguish differences in the affordances and constraints of mainstream media and digital and OSNs, including the presence or absence of the "gatekeeper" role in mediating access or attention from such groups.)

### 2  *Targeting: Reaching relevant audiences*

The second strategic assumption concerns an ability to align media visibility and audiences or constituencies (viewers, readers, social media users, activists, etc.) that are relevant to activists or ENGOs' objectives. For this reason, Wallack et al. (1999) emphasized the importance of an advocacy group's "media monitoring," that is, ascertaining whether and how an ENGO's issue or demand "is being reported in the news sources to which … [the] target audience is most likely to respond" (p. 28). The strategic challenge is a group's desire to reach "the person or organization with the power to make the change" that the group seeks (p. 28).

Importantly, politically relevant audiences may be reachable only through specific media—whether via mainstream or new media—requiring ENGOs to "adopt a highly targeted approach, carefully 'packaging' their information … to suit the particular needs of selected media" (Hansen, 2010, p. 56).

### 3  *Messages: efficacious media framing*

Media scholars have also observed that activists and ENGOs not only must secure the co-operation of media, or self-initiate digital or online sources relevant to selected audiences but must also ensure favorable framing of their issues or demands (Nisbet and Huge, 2006). As we shall see in section "ENGOs and media research challenges," such media efforts face many difficulties, not only in traditional news coverage, but in ensuring control over a group's message via digital (Twitter, Instagram, etc.) and social media networks. Early research, for example, reported occurrences of incongruence between a frame initiated by an environmental NGO, on the one hand, and its representation by mainstream media, on the other hand (DeLuca, Lawson and Sun, 2012; Hansen, 2010).

### 4  *Responses to counter-communication and other contingent events*

An environmental group's access to media, the framing of its issues, and audience responses occur in wider contexts of contingent events, constraints, and sometimes opposing forces. News cycles, concerted campaigns by opponents, unfavorable media framing, low salience of environmental news, and other obstacles often inhibit the effectiveness of the group's communication. The prevalence of climate denial conversations on Twitter, for example, has overshadowed tweets from a pro-climate science source, making it harder for the latter to counter disinformation (Khoo and Ryan, 2020).

### 5  *Alignment of media, messages, and outcomes*

As we noted above, few studies of activists' and ENGOs' uses of media involve an analysis of such groups' *strategic alignments*, that is, an account of the relationships among the group's decisions about modes of dissemination, media framing, audiences, and an intended effect or outcome. The efficacy of such alignments, nevertheless, is clearly an important concern of such groups.

In their analysis of news coverage of environmental NGOs during climate policy deliberations in Canada, for example, Stoddard, Tindall, Smith, and Haluza-Delay (2017) underscored the importance of such a strategic challenge. "Our findings," they reported, "challenge optimistic accounts of the relationship between media power and political power and suggest that media power does not necessarily translate to political efficacy" (p. 386).

## ENGOs' strategic uses and affordances of media

While scholars have devoted little explicit attention to the internal assumptions of environmental NGOs, studies of such groups' actual practices and uses of media, particularly digital and OSNs, are numerous and growing. This research—usually in the form of case studies—documents a series of interrelated decisions by NGOs, reflecting the strategic terrain in which their advocacy operates. In this section, we survey studies addressing these groups' cultivation of media sources to gain visibility and/or disseminate their message, attempts to frame issues favorably, and, relatedly, NGOs' efforts to align their uses of media and exposure to relevant audiences.

### *Attention and uses of media*

Until recently, most studies of environmental groups' relationships with media presupposed the role and influence of traditional news organizations—newspapers, radio, TV—and, hence, emphasized the need for strategies of access and attention from such sources. Among other strategic purposes, ENGOs "seek media attention and coverage, to increase their communicative reach" (Luxon, 2019, p. 639). As Nisbet and Huge (2006) explained, "Power in policy making revolves in part around the ability to control media attention to an issue;" thus, "the media lobbying activities of strategic actors" become an important determination of media coverage that reflects and shapes "where an issue is decided, by whom, and with what outcomes" (p. 3).

Environmental group's access and attention from mainstream media occur within a matrix of competing forces and constraints: Shifting news cycles, need for narrative structure, type of reporter assigned to a story, and "competition from other issues for attention" (Nisbet and Huge, 2006, p. 3). Further, Anderson (1991) found that environmental NGOs faced a fundamental difficulty: "while environmental issues tend to be drawn-out processes …, the media feed upon short, sharp, highly visible events" (p. 465). In adapting to these constraints, scholars have identified a range of strategic initiatives used by activists and ENGOs to gain attention from traditional media.

Prominent among environmental groups' efforts to attract attention from news organizations has been the use of earned media or events that fulfilled traditional media norms of "newsworthiness" (Anderson, 1997; Hansen, 2010; Lester, 2010; Pezzullo and Cox, 2018). Analyses of these strategic efforts have included a range of activities: Protests, demonstrations, street theater (DeLuca, 1999; Pezzullo, 2003a); sit-ins, blockades, and other forms of civil disobedience (Hayes, 2006; Short, 1991; Wall, 1999); and other so-called "image events," what DeLuca (2005) has described as "staged, visual events that take advantage of television's hunger for pictures, particularly images of conflict" (Pezzullo and Cox, 2018, p. 100). Other studies have examined the use of celebrities as spokespersons (Brockington, 2008); "toxic tours," (Pezzullo, 2003b); and various forms of "ecotage" (Lange, 1990; Wagner, 2008). Resource-poor groups, particularly, have relied upon such strategies. Waisbord and Peruzzotti (2009), for example, document the uses of rallies, parades, street theatre, and

blockades of roads and bridges as a way of adapting to media's willingness to cover "conflictive and dramatic events" in the *asambleísmo* movement in Argentina (p. 696).

Media scholars have also begun tracing the uses of digital and OSNs as a means to leverage wider attention from broadcast and print news media. Indeed, one of the affordances of new media is the absence of a so-called "gatekeeper" or mediating function that determines access to a newspaper or TV news platform. Lester and Hutchins (2009) have argued that this potential for "sustainable self-representation … promises to avoid both the fickleness of changing news agendas, the vicissitudes of reporting and editorial practices, and the contending corporate interests of large-scale news conglomerates" (p. 591). As a result, activists and ENGOs can not only address supporters or issue-attentive publics directly but in doing so, mobilize a potential audience for print, cable, or broadcast media. When anti-air pollution activists in Krakow, Poland, for example, began a Facebook campaign, sharing air pollution readings and generating street protests, journalists "took note of the social media blitz, and press and television coverage of the air pollution issue jumped dramatically" (Gardiner, 2014, para.8).

Similarly, Thorson (2020) found climate advocacy groups increasingly focusing on "citizen mobilization via social media as a strategy, proposing that by mobilizing the … climate issue public into expressive action they will better be able to capture media coverage and pressure policy makers" (p. 349). Indeed, "social media platforms and online communication have become a 'part of the repertoire of practically every climate NGO' as they sought to mobilize the public … as well as the news media" (Vu et al., 2020, p. 451, quoting Schäfer, 2012, p. 530).

Still, media scholars have found that some earned media initiatives may confront limitations. While activists and ENGOs' image events and other protest actions initially might generate news coverage, research generally has shown diminishing effectiveness. Hansen (2010), for example, has cautioned that "theatrical stunts and visually daring protest actions" are not always "sufficient for remaining on the media agenda or for maintaining media visibility for the long term" (p. 53).

Complicating such staged events, further, has been a "conflict between the need to command attention and the need to claim legitimacy" (Cracknell, 1993, p. 8 Greenberg, 1985). DeLuca (1999) and Wagner (2008), for example, found that environmental groups' dramatic protests or stunts—while generating news coverage—evoked mainstream media frames of controversy which portrayed the groups as radical or extreme. Indeed, some media scholars were beginning to document a change in the relationship between some ENGOs and news media, as early as the 1980s. Greenberg (1985), for example, found that the UK group Friends of the Earth had decided by this time to combine "a strong research commitment with its attention-getting tactics… in order to have credibility" (p. 356).

A research role may be one related factor in explaining the greater effectiveness of environmental NGOs in gaining access to news outlets. Hansen (2010) has argued "successful" environmental groups have become "skilled in providing what Gandy (1982) refers to as 'information subsidies' to media news professionals and organisations short of both time and resources" (p. 59). By providing such information, therefore, ENGOs can reduce a news organization's price or "market cost" of obtaining similar information through its own resources (Gandy, 1982, pp. 8, 30–31). More recently, Konisi (2018) analyzed WWF Japan's strategy of working behind the scenes to build the expertise of journalists at mainstream media outlets. This "Background Media Strategy" of providing climate information enabled journalists "to compensate for organizational routines that brought them too close to government sources, and to write more accurate articles" (p. 571).

## *Aligning media and audiences*

Scholars studying the strategic uses of media have been particularly concerned to understand environmental groups' *selective choice* of media, that is, their attempts to align a particular mode of dissemination—including both new and traditional media—and an appropriate or relevant audience. As we noted earlier, successful ENGOs' are knowledgeable not only about the different requirements of news organizations but, importantly, about "target audiences of different media," who "adopt a highly targeted approach, carefully 'packaging' their information … to suit the particular needs of selected media" (Hansen, 2010, p. 56). Indeed, Merry (2012) found, "across a wide range of media," US environmental groups "vary their communication styles according to audience characteristics" (p. 49).

An early attempt to trace the choice of media for its relation to a desired audience or constituency was DeHanas' (2009) study of Muslim women's use of a specific medium, Muslim Community Radio in the East End of London in 2007. DeHanas found that the alignment between the women's radio programming (imbuing environmental ethics with religious meaning) and its selective use of media (MCR 87.8 FM) accounted for the program's appeal to female listeners in London's Muslim community. And, in an innovative alignment of media and a selected audience, Greenpeace International used Facebook itself to mount its "Unfriend Coal" campaign (2010–2011) against the social media giant's energy policy. As Katz–Kimchi and Manosevitch (2015) observed, Greenpeace "seized the affordances of the Facebook platform and introduced new means of online mobilization," using its platform both for disseminating its campaign message and engaging users to "Unfriend" or demand that "Facebook stop using coal as a main energy source in operating its data centers and switch to renewable energy sources" (p. 255).

Importantly, with the pervasive use of digital media and online social networks, environmental activists and ENGOs have, to a considerable degree, dramatically altered the relationship between themselves and traditional news outlets and, in the process, helping to "change the conditions for visibility in environmental politics" (Lester and Hutchins, 2012, p. 848). As we observed, with the absence of a gatekeeper function, new media have enabled environmental and climate groups to address their supporters and selected issue publics directly, raising awareness, organizing resistance, and creating spaces for exchanges (DeLuca, Lawson, and Sun, 2012; Lester and Hutchins, 2009; Lin, 2012; Pal and Dutta, 2012).

The affordances of online and social media also allow such strategic targeting of audiences. As Segerberg (2017) observed, "low communication costs allow [climate change] campaigners to calibrate their choice of channels, rhetorical style, and content according to what is relevant and appropriate for the intended audience" (p. para. 16). Indeed, as Hestres (2015) found, both legacy and newer climate advocacy organizations commonly use social media, blogs, and other strategic online actions to communicate not only with the general public, but with specific audiences such as the Environmental Defense Fund's "extensive use of specialized blogs to reach specific audiences − e.g., fisherman, farmers, etc. − as well as elite opinion and the general public" (p. 205).

An interesting use of digital media by ENGOs to reach audiences "who have not self-selected" to be exposed to environmental media has been the growing deployment of "projection mapping," also known as "projection bombing," "Light Visuals," "guerrilla projections," etc. (Pezzullo, 2020, p. 61). Using light projection, this technology displays 3D images on non–flat surfaces such as a building that is symbolically related to a campaign's purpose, for example, the projection of images of endangered species on St. Peter's Basilica in Vatican City, in a light show titled "Fiat Lux (Let There Be Light): Illuminating Our Common Home." The images were "aimed to inspire audiences to feel reverence for and identification with

nonhuman species and human communities across the planet" (p. 68). Pezzullo proposes that projection mapping affords the possibility of visually transforming public spaces for engagement by new audiences; it "creates a kind of temporary venue to have … conversations" about important issues (p. 63, quoting projection artist Robin Bell, in Segal, 2017).

Beyond their function as modes of dissemination of user-generated content for appropriately aligned (external) audiences, digital media and OSNs have also emerged as vital organizing resources for ENGOs and their supporters *themselves.* That is, such media is enabling climate and environmental groups to communicate (internally) and with supporters in planning, orchestrating events, mobilizing turn-out, and coordinating marches and other purposeful actions. Studies of such media uses have ranged from the International Campaign for Justice's use of a website for mobilization offline and online support in its fight for justice for the survivors of the Union Carbide disaster in Bhopal, India (Pal and Dutta, 2012) to the "crosscutting Twitter streams" in coordinating protests at the 2009 Copenhagen climate summit (Segerberg and Bennett, 2011, p. 197). Indeed, in their study of the Occupy Wall Street movement, DeLuca, Lawson, and Sun (2012) reported that activists' use of Twitter, Facebook, and YouTube created "new contexts for activism that do not exist in old media"; such media, they argued, "foster an ethic of individual and collective participation, thus creating a norm of perpetual participation" (p. 483).

Part of the challenge in identifying the strategic significance of such uses of digital media, Segerberg and Bennett (2011) have proposed, is to determine "*how such technologies infuse specific protest ecologies,*" that is, how such media interact, not only with events, but with each other in mediating actors' relationships and the movement's visibility (p. 197; emphasis in original). In their study of activists' uses of Twitter at the 2009 Copenhagen summit, for example, Segerberg and Bennett reported that Twitter profile feeds, hyperlinks, and community-generated hashtags connected "diverse users, uses and different temporal and spatial regions of the protest space" (pp. 197, 203). (We shall say more about this below.)

## *Media framing and dissemination of messages*

Earlier we noted a strategic media challenge of activists and ENGOs was the need to select and ensure a favorable framing of their issues or objectives. An extensive area of research, the study of environmental framing and dissemination of messages focuses on different constructions and purposes of frames and the tensions between an ENGO's initiation of a frame and news outlets' response or possible alteration of it, as well as the ability of the group to remain control of specific frames when circulating its messages in open, participatory digital networks.

Rather than survey the extensive framing literature itself, we attempt to identify the strategic uses and challenges of framing and message dissemination by ENGOs and activists via mainstream news outlets as well as new media. (In doing so, we use the terms "framing" and "frame" in their general sense to include closely related rhetorical constructs—metaphor, theme, narrative, etc.—when these also function to orient an audience's attention to, or govern a group's media message.)

## *Nature and uses of ENGOs' framing*

Studies of environmental frames range from identification of specific frames in ENGOs' messaging to analyses of the rhetorical or lexical nature of such frames, for example, Russill's (2008) study of the epidemiological contexts for the "tipping point" forewarnings in climate change communication.

Perhaps the broadest category of studies of ENGOs' frames has been examinations of the specific types or genres of frames, including narrative forms used in climate and environmental messaging. Prominent among studies of such narrative frames are apocalyptic narratives (Foust and Murphy, 2009), the jeremiad (Buehler, 1998; Opie and Elliot, 1996; Singer, 2010; Wolfe, 2008), and melodrama (Kinsella et al., 2008; Schwarze, 2006). Such studies have, at times, focused explicitly on the *strategic* decisions involved in an ENGOs' framing, for example, Ji, Harlow, Cui, and Wang's (2018) study of Greenpeace China adopted a "responsibility frame heavily in messages [that] focused largely on pollution-related topic."

When used to orient audience attention or govern an ENGO group's message, such narrative frames align with journalistic norms, that is, stories with cultural resonance. Foust and Murphy, for example, documented the prominence of apocalyptic narratives specifically in media coverage of climate change. And Väiliverronen and Hellsten (2002) described the pivotal use of metaphors about biodiversity loss in generating media storylines, including apocalyptic narratives of extinction. Such metaphors were pivotal to media coverage because they "evoke[d] powerful images and emotions" (p. 241).

Other studies have traced shifts in the prevalence of frames as a result of certain events or developments. For example, Kim and Cooke (2018) discovered that the use of prevalent "Disaster" frames for climate change on Twitter declined after US President Trump announced a withdrawal from the Paris climate agreement, while very different "Political/Ideological Struggle" frames increased threefold after the announcement.

More often, scholars have tended to examine ENGOs' uses of frames strategically, as an important communicative element in what Salmon, Post, and Christensen (2003) have termed "public will" campaigns, that is, initiatives designed to mobilize public support as a means for influencing specific change. Luxon (2019) noted the role specifically that emotional frames play in such campaigns:

> ENGOs try to change public and policy attitudes by highlighting the emotional impacts of negative environmental practices. This framing, through the use of 'emotional language and images,' seeks 'to convince people that some practices and choices are wrong, morally and environmentally' (Dauvergne and Neville [2011], p. 192). For example, ENGOs' chronicles of dolphin and seal deaths have transformed public attitudes toward fishing practices (Gray et al. [1999], Wright [2000]). One of Greenpeace's founders called strategic emotional frames 'mindbombs' because of their potential to change minds and worldviews.
>
> *(Dauvergne and Neville [2011]). (Luxon, 2019, p. 641)*

At least when used initially by an ENGO, such "emotional frames" are not necessarily detrimental to news media coverage. Luxon (2019), for example, found in a study of 350.org, the climate youth NGO, that "appropriate emotional frames for mobilization" used in the group's press releases "influence[d] media coverage, when they were used" (p. 639).

Other studies have traced ENGOs' efforts in campaigns that tailored messages strategically in relation to audience interests, values, and responsiveness. Interest in the public's responsiveness to groups' climate change communication, for example, has spurred investigations of frames that foreground "public health" (Maibach, Nisbet, Baldwin, Akerlof and Diao, 2010). And Van Gorp and van der Goot (2012) have examined different stakeholders' deploying frames such as "progress" and the archetype of the "Good Mother" in debates over sustainable agriculture (p. 127).

In some cases, environmentalists miss opportunities for strategically adapting to a relevant audience. Haluza-DeLay and Fernhout (2011), for example, concluded that English-speaking Canadian environmental groups often remained locked into an "environmentalist" frame, ignoring the prevalent cultural master frame of "social inclusion" (e.g., multiculturalism).

## *Media counter-framing*

While many environmental organizations succeed in securing favorable news media coverage of the frames they have initiated, this is not always the case. Several studies have found instances of alteration or incongruence between the frame initiated by an ENGO and its representation by media sources. In their study of debate over a Norwegian oil company's drilling, for example, Ihlen and Nitz (2008) described the tendency of some news outlets to use a "typical media frame, the 'horse race' frame," ignoring the frames initiated by environmental groups (p. 1). Similarly, Doyle (2011) explored how the UK news media "contributed to the reframing of nuclear power as low carbon [dioxide]," and implications of this for public support of nuclear power (p. 107).

Often, the reason for media alteration of ENGOs' frames is less their opposition to groups' issues than media norms. For example, Nerlich and Koteyko (2009) traced the reasons for differences in UK press coverage of the Carbon Rationing Action Groups' (CRAGs) relatively neutral issue frames on reducing one's carbon footprint. The English-speaking press, they reported, tied these frames to overarching metaphors of finance, religion, and diet that were "already familiar to newspaper readers interested in climate change." These press metaphors, they explained, framed' "what CRAG s are doing in relatively moralistic terms," whereas the use of frames on the CRAG website remained "relatively neutral" (p. 220).

Beyond the prospect of media reframing of an ENGO's message is the negative characterization of a group's identity itself. Hansen (2010), for example, argues that news media "exercise a considerable amount of 'ideological work,' not merely in terms of the differential accessing of sources" such as the deference given public officials and industry representatives, but in the ideological reframing of environmental groups' character (p. 56). This occurs, Hansen explains, through the media's "differential choice and promotion of particular lexical terms," for example, labelling "Greenpeace as 'terrorists,' 'a nuisance,' 'undemocratic'" (p. 57). Similarly, Steger and Drehobl (2018) found in their study of framing in Irish newspapers that anti-fracking activists struggled to counter media counter-framing of their credibility, with some journalists framing the activists as "anti-democratic development" (p. 354).

## *Frames in networked media*

Finally, some scholars have begun to trace the endurance or modifications of activists and ENGOs' issues frames and/or messages generally in digital media, OSNs, and other open, participatory networks. Until recently, as some noted, ENGOs have tended to "use social media platforms for unidirectional, informational messaging rather than engaging in the dialogic potential of the platform" (Comfort and Hester, 2019, p. 281; see also, Duhé, 2015; Sommerfeldt, Kent, and Taylor, 2012). While not addressing frames specifically, Comfort and Hester acknowledged such groups' general "fear of loss of message control" which may explain their desire to avoid open, networked media (p. 281.)

In their study of Twitter hashtag messaging during the 2015 UN Climate Change Conference (COP21) in Paris, Comfort and Hester, nevertheless, found some success by a pro-climate policy NGO in maintaining some control over its messaging on their #climatemarch

hashtag. Still, they noted that "skeptical voices, as well as the news media, also participated in the networked conversation and grew in prominence over time" (p. 285.) The challenge for ENGOs more generally, the authors argued, is "organizationally produced social media messages engage with different groups beyond the activists that environmental NGOs want to target (i.e., those already committed to the NGOs' perspective)" (p. 285).

## *Contingency and oppositional media*

Most studies acknowledge, implicitly, that environmental NGOs' targeting of media is far from being determinative of a group's desired outcomes. Early on, Wallack et al. (1999) cautioned that the strategic challenge for pressure groups' uses of media was more than simply "raising awareness" (p. 13). Environmental communication scholars have identified, for mainstream and new media both, that ultimately their success is also contingent upon multiple, intervening events and constraints.

Among the recurring challenges and constraints that potentially constrain the effectiveness of an ENGOs' media efforts are:

1   Messaging may lack salience or fail to adapt to audiences' interests or motives; for example, groups' use of fear-inducing appeals may be ineffectual in prompting desired behaviors (O'Neill and Nicholson-Cole, 2009).
2   Some journalists resist being "stage-managed" by ENGOs' reliance on "stunts" or dramatic events to draw media attention (Hutchins and Lester, 2006).
3   News media may frame an ENGOs' message or identity unfavorably (Ihlen and Nitz, 2008). Such unfavorable coverage occurs, particularly, when issues are framed within dominant discursive norms that marginalize environmentalists' rhetorical choices (Takahashi and Meisner, 2012).
4   Media norms may elide ENGOs' cultivation efforts due to news cycles, sourcing practices, etc. Mainstream media, for example, is often "authority-oriented," i.e., media are less likely to cover environmental sources than industry or government sources (Sovacool, 2008).
5   Environmental groups' publicity may have "a negative influence on [the] groups' claims…, particularly if the main effect is to galvanize opposition" or counter-media (Hansen, 2010, p. 51). Other studies have found such opposition can lead to protracted conflict. In identifying "manufactured scientific controversies," for example, Ceccarelli (2011) has documented a propensity of mainstream news media particularly to funnel competing scientific appeals into a conflict frame.

As a consequence of these challenges, environmental NGOs may face difficulty in controlling the reception of their messages as they "operate in an increasingly crowded discursive landscape, [and] as campaigners and counter-campaigners articulate … frames that resonate differently across changing social and cultural contexts, and in light of globalising markets, transnational networks and changing media" (Dauvergne and Neville, 2011, p. 192). An emerging area of investigation has been the study of "the role of digital intermediaries, such as search engines and social media platforms, in shaping public information, given that their architecture and algorithms structure and filter search results and feeds" (Segerberg, 2017, p. 14). A recent report by Avaaz, for example, found that, when users search YouTube for "climate change" or related phrases, for example, its search engine "has been driving millions to climate denial videos with its recommendation algorithm" (Avaaz, 2020, para. 1).

Beyond media norms and a crowded discursive landscape, ENGOs also confront dominant or prevailing discourses or frames that present different challenges. In addressing these constraints, a range of studies has described the strategic efforts to interrupt dominant discourses or constitute other frames in the media efforts of environmental justice organizations (Pal and Dutta, 2012), an activist campaign to stop Canada's seal hunt (Boudet, 2011), and protests against liquefied natural gas (Dauvergne and Neville, 2011). Brady and Monani (2012), for example, deployed a "just sustainability" frame to "interrogate not only … economic development but also the use of popular American Indian archetypes like 'the Ecological Indian' in the marketing of sustainable energy" on tribal lands (p. 147).

Other scholars have examined the critical use of ENGOs' frames by sympathetic, "alternative" media. In a study of conflict over metallic mining in El Salvador, for example, Hopke (2012) found that the efforts of alternative media were able to "break a cycle of environmental inequity" by reframing the Salvadorian government's "dominant narratives of economic progress toward community rights and environmental justice" (p. 365).

More recently, ENGOs' have pushed back against both Facebook and Twitter for enabling climate misinformation to proliferate on their sites. In 2020, a coalition of prominent ENGOs, including Greenpeace, the Sierra Club, and Friends of the Earth released a joint statement (Frost, 2020) critical of Facebook and demanding it take responsibility to stop climate deniers on their site: "Facebook admits climate misinformation on its platforms is a rampant problem, but it is only taking half measures to stop it" (quoted in Frost, para, 6). Relatedly, ENGOs also exposed online climate denial accounts on Twitter after hiring the network analysis firm Graphika (Khoo and Ryan, 2020).

### *Alignment of media, messages, and outcomes*

Earlier, we cited Wallack et al.'s definition of the strategy as the use of media "in relation to and in support of, rather than instead of or isolated from," the other elements of a campaign (p. 9, 10). Accounting for this strategic assemblage of ENGOs' media uses have grown more complicated as environmental protests and large demonstrations have taken advantage of what DeLuca and Peeples (2002) have called the "public screen" (p. 132) as well as the "horizontal media" of social networks, micro-blogging (e.g., Twitter), and other social media (DeLuca, Lawson and Sun, 2012; "The People," 2011, p. 10). A few environmental and media scholars have, nevertheless, attempted to investigate some of the pathways or strategic alignments among ENGOs' selection of media, frames or messages, audiences, and outcomes.

An early attempt to trace the relationships among media, messages, and outcomes was Eyerman and Jamison's (1989) study of Greenpeace's strategic use of news media. They concluded that the relationship among Greenpeace's "selective gathering of campaign-related facts, the selective dissemination of arguments to the media and other public fora … [gave] Greenpeace its enormous influence" (p. 113, quoted in Hansen, 2010, pp. 54–55). Similarly, Lester (2011) illustrates one of the few accounts in her analysis of the Sea Shepherd Conservation Society's highly mediated campaigns against the harpooning of whales. In this case, the relationships among the campaign's strategic decisions—the use of celebrity to gain media access, exploitation of media frames of conflict, etc.—enabled greater visibility for the campaign's key figure Paul Watson and his ability "to participate in public debate" over whaling (p. 124).

Further, in the anti-whaling case, Lester (2011) found that, while the campaign's visibility involved "a complex flow of information and meanings across various 'old' and 'new' media

form," it still remained reliant on traditional media to showcase its images and news feeds via distributed news and cable television (p. 124; also, Lester and Hurchins, 2009, p. 580 ff.).

More recently, Allan and Hadden (2017) identified strategic alignments by which EN-GOs' framing, mobilization, and media attention may have helped influence a shift in policy outcomes at the 2015 Paris climate conference. Employing the method of "process tracing" Collins (2011), the authors identified, by ENGOs' shifting from a "science" frame to a "climate justice" frame, plausible pathways which led to increased persuasion of state actors:

> First, NGOs' shift to a justice-based issue framing increased attention to the issue and laid the groundwork for the formation of new coalitions, increasing solidarity among NGOs and state actors and amplifying the voices of developing countries. Second, this frame shift increased [media] attention to loss and damage, raising the stakes for state delegates to address the issue…
>
> Together, intensified issue attention and coalition growth enhanced NGOs' ability to … persuade state actors, ultimately translating into influence.
>
> *(p. 601)*

While the framing shift and NGOs mobilization may "make it difficult to attribute responsibility for the outcome solely to the strategic decisions of NGOs," Allan and Hadden conclude, "NGOs were able to enhance their own mobilization and resources with strategic framing… [and that such] framing can be plausibly linked to increased influence" (pp. 615, 616).

Overall, attempts to document how the relations among ENGOs' media initiatives—messages, modes of dissemination, audiences, and outcomes—strategically align have not been widely undertaken. The reasons for this are not difficult to understand. They are likely due to the contingent and/or over-determined nature of media effects themselves, as well as the difficulties of access to the internal deliberations and decisions of environmental NGOs (Fox and Frye, 2010).

## ENGOs and media research challenges

While the multidisciplinary literature of environmental activists and NGOs' uses of traditional and new media is extensive, there remain noticeable gaps and new challenges inviting further study. Segerberg (2017), for example, has recommended broadly, in regard to online climate campaigns, that "a crucial task for future research is to continue to develop a comprehensive, contextualized, and temporally grounded analysis of the campaigns and the publics they engage" (p. 21).

Beyond such a comprehensive undertaking, we believe there is a specific research challenge for scholars. Despite current studies, accounts of ENGOs' strategic rationales *per se* remain surprisingly understudied. By strategic rationale, we mean accounts of the service or "work" that ENGOs' deployment of media are expected to perform in a campaign's advocacy efforts. Why (and how), for example, do such decision-makers believe *this* appeal and *these* modes of dissemination to *these* audiences are likely to align ultimately with intended outcomes or effects? An understanding of such accounts could yield insights into ENGOs' decisions contributing to successful as well as failed media strategies, enhancing both the theory and the practice of environmental communication.

Complicating such investigations, we believe, there are three specific tasks—two conceptual and one methodological—that better enable environmental communication scholars in addressing ENGOs' strategic rationales.

### *ENGOs and media ecology*

Initially, comprehensive accounts of ENGOs' strategic uses of media must address dynamics introduced by complex digital processes in which multiple platforms and pathways for circulation, exchange, and remediation affect user/receivers' understanding and participation. As climate NGOs' campaigns, for example, evolved from email to social media-centered campaigns, they have been able to use the enhanced capacity to target multiple audiences at the same time, varying their communication in layers and across platforms" (Segerberg, 2017, p. 10).

Such investigations are made more challenging both by the remediations enabled by the interconnected, open structures of digital platforms and the instability of meaning and difficulties of ENGOs and activists in managing the flow of messages that this openness creates. Under such conditions, Lester and Hutchins (2012) argue, "Particular political positions and practices are alternatively legitimized, delegitimized and/or bypassed in highly unpredictable ways in the process." This instability in the social production of meaning then feeds back into multi-directional digital information flows, and public opinion(s) that are difficult to manage and predict (Cottle, 2011, quoted in Lester and Hutchins, 2012, p. 859).

As a consequence, innovative conceptual and methodological approaches, including variants of network analyses, have been increasingly proposed as means to investigate ENGOs' online campaigns as well as large protests. Early initiatives include Wolfe's (2009) study of *The Meatrix* video which attributed the video's ability to engage 20 million viewers online to a "rhizomatic view of *The Meatrix* assemblage," that is, "a distributed system, an open and shifting constellation of intertextual, disseminating, and user producing relationships" (p. 329). And, as we noted earlier, Segerberg and Bennett (2011) began the task of mapping large-scale protests by analyzing Twitter streams, hyperlinks, retweets, and community-generated hashtags that connected climate activists during large protests at the 2009 UN climate summit in Copenhagen.

Similarly, Doğu (2019) integrated network analysis and framing as an exploratory approach for analyzing protest networks on Twitter and the propagation of frames in the protest network of the Cerattepe protests in Turkey. Other recent approaches include Vu et al.'s (2020) employing social network analyses and big data to investigate global climate NGOs' connections —or not—on Twitter; Bloomfield and Tillery's (2019) study bringing together rhetorical analysis and networking strategies to document ways climate denial circulates online; and Comfort and Hester's (2019) investigation of Twitter hashtag messaging in the participatory networked media of protests during the 2015 UN climate in Paris.

Finally, we note the potential for inquiry beyond formal ENGOs to studies of media dynamics of large-scale, networked activist protests, such as the massive gatherings at climate marches and UN conferences. Bennett and Segerberg's (2012) *logic of connective action* (versus classic logics of collective action) offers one conceptual approach for identifying the recombinant networks in such assemblies that emerge with little or no organizational backing and that enable "large scale personal access to multi-layered social technologies" (p. 756).

### *Constituting effects or outcomes*

Relatedly, environmental communication scholars must continue to tackle the second conceptual task—according for "effects" or outcomes, particularly with such digital and OSNs in which linear assumptions of the strategic terrain are increasingly limited (Allan and Hadden, 2017; Gulliver et al., 2020; Segerberg, 2017). Studies of ENGOs' media uses often assume a relatively uncomplicated, strategic relationship among message, media, audience, and outcomes.

Within increasingly open, distributed systems, scholars are particularly challenged to account for the pathways or traces of ENGO campaigns' modes of dissemination, their contingent alignments, and impacts on diffused or unspecified audiences. Increasing efforts have, nevertheless, begun to identify wider contingent relations among social media, the arousal of public concern, and subsequent events. In a study of the anti-Lynas protests against an Australian mining company's plans in Malaysia, for example, Kaur (2015) described "how ENGOs' strategic use of social media played a vital role in creating awareness and informing the public about the hazardous rare earths mining, which [in turn] led to a thorough investigation of Lynas' activities" (p. 311). Still, there is more to be done, as Segerberg (2017) reports, "robust knowledge of attention, attitude, knowledge, and belief outcomes related to online and social media campaigning is still being established" (p. 15).

## Behind the scenes

To address further these challenges, we believe that environmental communication scholars must continue to move beyond content or media-centric approaches to ENGOs' strategic uses of media. Not only network analyses, but as important are engaged modes of research—interviews with campaign leaders; participant observation studies; field ethnographies; and other behind the scenes contacts—in assessing ENGOs' strategic decision-making and intentions regarding outcomes. Della Porta and Rucht (2002), for example, urged scholars to *observe more closely* the ways environmental campaigns are "organized, orchestrated and framed" (p. 5; emph. added), while Anderson (2017) similarly urged, "more research," "needs to examine behind-the-scenes relations between sources and journalists" (para. 1).

Further, a number of scholars have begun to gain access to the genesis of some environmental groups' internal, strategic thinking and their decisions about campaign design and outcomes. Chesters and Welsh (2004), for example, succeeded in observing the "deliberative processes that were undertaken by activists involved in framing the protests" at the World Bank's meetings in Prague in 2000 (p. 314), while Dai, Zeng, and Wang (2017) undertook in-depth interviews with media officials and project managers of four Chinese ENGOs in their analyses of these groups' media decisions.

We believe tackling such challenges is critical to advances in our understanding of environmental pressure groups and NGOs' communicative actions in an increasingly changing media environment. Such analyses would begin to identify more rigorously the strategic contributions of media/communication in the wider designs of environmental NGOs' campaigns.

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# 8

# MANAGING THE CLIMATE APOCALYPSE

## Think tanks, policy planning groups, and the corporate capture of sustainable development

*William Dinan and David Miller*

### Introduction

There is a well-established scientific consensus that 'the warming of the Earth over the last half-century has been caused largely by human activity' (Royal Society, 2010: 1). Yet meaningful political action on climate is painfully slow. There is growing concern that the scale and consequentiality of the climate emergency have not yet triggered appropriate policy responses, with the UN IPCC Sixth Assessment Report emphasising that current unprecedented climate change is 'widespread, rapid and intensifying' and that 'global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO2 and other greenhouse gas emissions occur in the coming decades' (2021: 17).

Among the reasons for a generation of political paralysis on climate, issues are the activities of those corporations that stand to lose the most from rational policy decisions. These corporations, from extractive and other industries with heavy environmental footprints, have in the main attempt to frustrate meaningful progress. As is well known, some corporations have attempted to foster doubt about the scientific consensus on climate (Farrell, 2016; Farrell et al., 2019; Michaels, 2008; Oreskes & Conway, 2010; Supran & Oreskes, 2017) – a strategy often referred to as climate change 'scepticism', 'denial' or 'contrarianism' (see O'Neill & Boykoff, 2010).[1] One study concludes that contrarianism on climate, led by conservative think tanks 'is a tactic of an elite-driven counter-movement designed to combat environmentalism, and that the successful use of this tactic has contributed to the weakening of US commitment to environmental protection' (Jacques et al., 2008: 365). Perhaps the most striking manifestation of this strategy was the Trump policy to withdraw from the Paris climate accord, amplifying and mainstreaming doubt about climate science.

Less controversial has been the strategy of a range of other corporations in the oil and associated industries which has not denied the evidence that climate change is largely caused by human activity, but has sought to manage responses to protect their interests. We refer to this strategy as the attempted corporate capture of environmental policy. The climate contrarian strategy is perhaps better known, however, it would be a mistake to focus only on the former. This is because, empirically, the oil industry has pursued both strategies and in terms of outcomes both have been effective in delaying or stopping meaningful climate action.

This chapter examines how contending factions of corporate and policy elites have organised, constructed, and communicated climate issues. The chapter will look specifically at the role of elite policy-planning groups, think tanks, and other lobbying organisations, which have played a significant role in communicating climate change and practically frustrating progress. Taking an approach which recognises the crucial role of ideas and communication in power relations, this chapter grounds analysis in an understanding that ideas must be put into practice to be effective (powerful), and therefore addresses the role of key agents such as think tanks in mediating between social interests, the realms of ideas and concrete policy outcomes. Our analysis suggests the centrality of communication to how the environment is constructed and contested. We advance a distinctive approach that sees communication in a wider context than just in terms of the mass media and the internet. Communication is fundamentally linked to social interests and, therefore, the material world. By this, we mean, first, that 'environmental communication' is an irreducible component of environmental politics. This is not just a question of the centrality of mass media or the internet to environmental politics, but of communicative processes 'outside' of the media and 'inside' social institutions (such as the state/policy networks, corporations, and civil society) and fields (national and international politics, environmental policy, the legal system, journalism, etc).

Second, we mean that ideas about the environment and their communication spring from social interests, or are related to them. We do not mean that this occurs automatically in a simple reflection of economic interests, since the human intellect and processes of judgement, strategy, and assessment necessarily mediate how interests are conceived and are negotiated or contested within social institutions. Thus, we do not adhere to the 'treadmill of production' approach in environmental sociology, which tends to reduce interests to a purely economic level (just like opposing approaches such as neoclassical economics and the rational actor and public choice models associated with it). Nor, however, do we agree with ecological modernisation approaches which are overly optimistic about the possibility of market solutions to environmental crises (Mol, 2001; Simionis, 1989). We are more sympathetic to the model advanced by Pulver (2007) which sees contest within and between economic and other actors as the context in which conceptualisation of, and decisions about, interests and therefore communicative strategies are made. The economic, social, and scientific networks within which corporate decision makers are located are significant. We would extend this by noting the constitutive importance of ideas and their communication to processes of contestation in relation both to networks and outcomes. In this context, inter-elite communication between different corporate factions (disembedded elites in some literatures) is too often underplayed.

## Understanding collective ideas

Our perspective insists that ideas emerge from social interests and their communication is part of the process by which people 'become conscious of conflict and fight it out', as Marx put it (Miller, 2002). But in the case of environmental communication more generally (as with most other areas of political struggle) it is necessary also to understand how ideas spread vertically and horizontally in society, and temporally and geographically. It is useful to consider theories that focus specifically on how ideas become popular and turn into collective phenomena. It is important to understand this process as one that can happen at many different levels in society, in relative divorce or conformity with other levels. In particular, because of the strong role of science in policy argument about climate change we need a concept that understands and explains how scientific theories emerge, are tested, and either

falsified or supported. In this respect concepts like the 'invisible college' (de Solla Price, 1986) and 'epistemic communities' (Haas, 1992) are useful in understanding how elite scientific ideas cohere. They are less able to explain how such ideas may spread more widely (i.e. in public debate or in policy) or conversely how ideas from elsewhere may influence science. The Polish microbiologist Ludwig Fleck (1979) argued that the development of scientific concepts is associated with the ideas and relative power of competing professional or ideological groups. A 'thought collective' is, says Fleck, 'even more stable and consistent than the so-called individual, who always consists of contradictory drives' (p. 44). German sociologist Karl Mannheim (1927) shared the sense of ideas having what he called an 'objective mental structure' that transcends the individual. 'In most of our intellectual responses' he wrote 'we are not creative but repeat certain statements the content and form of which we have taken over from our cultural surroundings' (1927: 132).

But Mannheim's conception differs from that of Fleck, whose thought collectives are seen as hermetically sealed – not allowing for agreed information between contending perspectives – as if evidence not only might not make a difference, but could not. Fleck 'seems to preclude (productive) disagreement' within a thought collective (Plehwe, 2009: 35). Manheim by contrast notes that 'if thought developed simply through a process of habit-making, the same pattern would be perpetuated for ever, and changes and new habits would necessarily be rare' (1927: 133). Changes in thought, Mannheim suggested, are 'produced' by 'social causes' (p. 137), they are 'socially determined' (1927: 142). The 'sudden breakdown of a style of thought…will generally be found to correspond to the sudden breakdown of the groups which carried it' (p. 135).

We draw attention, therefore, to the social interests that undergird ideas and their communication. These are condensed and crystallised in organisations such as think tanks, policy planning, and lobby groups, all of which require financial and logistical support to enable their ideas to flourish in practice. This suggests the need to examine how ideas are produced and made effective in addition to engaging with the ideas themselves. In that sense, we offer a materialist perspective on communicative power (Miller, 2002). This approach aligns with recent research that understands the relative failure of climate mitigation efforts over the last three decades as a product of existing power structures and relations (Stoddard et al., 2021).

The chapter reviews the existing literature on the mediation of climate issues and argues that understanding the dynamics of climate change communication necessitates not only a critical examination of the sources the media rely on in their reporting, but requires an analysis of the communication of climate outside of mass media. We note tensions within global elite networks between those that have aimed to provide leadership on climate by shaping and arguably dominating policy and public discourse and the defensive movement of climate change contrarianism. These two tendencies have resulted in differing sorts of lobbying, public relations, and elite planning organisations and also some 'churn' in corporate responses to climate issues.

It is important to understand that the role of the think tanks and lobby groups is multi-dimensional. They aim to dominate the information environment in a number of distinct public and private arenas. Thus, it is important not simply to examine the relative success of climate denial in relation to media reporting or governmental decision-making, but in relation also to a wider range of arenas including: the production and communication of scientific knowledge; mainstream media reporting; elite policy planning; and the level of government, inter-governmental and executive decision-making. However, it is clear that climate policy and deliberation spans multiple levels of governance, so the intersection of various think tanks and policy planning groups with the global, regional, national, and sub-state levels is significant, considering how each arena is interpenetrated by actors operating at multiple levels of governance.

## The mediation and communication of climate science

According to Boykoff and Yulsman, 'research spanning the past three decades has consistently found that the general public gains understanding of science (and more specifically climate change) largely through mass media accounts' (2013: 2). They correctly place public reliance on media reporting in the context of the political economy of the mass media, pointing to disinvestment in news-gathering and a decline in specialist correspondents. This, it is argued, has a negative impact on the ability of the media to scrutinise science and evaluate scientific controversy. This makes news media more reliant on 'information subsidies' from PR and official sources, or 'churnalism' (Davies, 2008; Lewis et al., 2008; Miller & Dinan, 2008). It also means that there is less capacity to analyse strategic communication campaigns targeting the media. Thus, understanding climate communication requires a wider frame of reference than simply analysing media reporting. However, we will begin this analysis by establishing how findings in relation to media coverage of climate issues are consistent with our more holistic approach, which sees the media as one (albeit important) social arena for climate communication.

The literature on media coverage of climate change provides broad agreement on a number of issues. For example, that media coverage of climate has increased since the beginning of the century, and the global patterns of media coverage are similar in that they tend to map onto key events such as intergovernmental conferences, IPCC assessment reports, and controversies like 'Climategate': 'media coverage is strongly event-driven and episodic, and … focuses on similar events across countries' (Painter & Schaffer, 2018: 44). There is a notable bias towards the concerns of developed countries in media reporting of intergovernmental climate politics (Gurwitt et al., 2017). Recent research suggests a very little discussion of the Anthropocene across mainstream media (Sklair, 2020), which is a significant blindspot. The Anthropocene is a concept that centres human agency in driving climate change and 'draws attention to the magnitude and consequences of a warming world and highlights that the irreversible damage already done to vulnerable ecosystems and people will extend across many millenia' (Stoddard et al., 2021). While there is a developing debate about this idea across academic literature there is no virtual debate or understanding of this framing concept in the mass media (Figure 8.1).
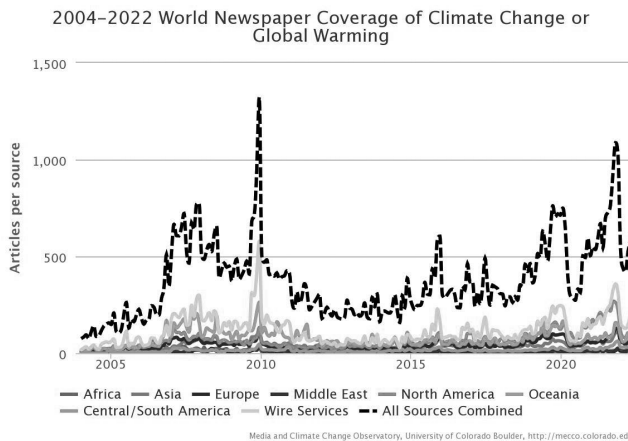


*Figure 8.1* The Rise and Fall of News Media Reporting of Climate Change

There appears to be strong support for agenda-setting effects in relation to climate issues, with public concern strongly correlated with media attention (Brulle et al., 2012). The journalistic norms of balance and conflict have created opportunities for climate contrarian voices to acquire a prominence in the media that is at odds with the marginalisation of their ideas in expert arenas (Boykoff & Boykoff, 2007; Oreskes, 2004). However, it is difficult to conclude that journalistic norms alone could account for the prominence and efficacy of climate contrarianism. We need in addition to examine how such opinion is organised and disseminated, which is consistent with research on public opinion on this topic which finds that 'science-based information is limited in shaping public concern about the climate change threat. Other, more directly political communications appear to be more important' (Brulle et al., 2012: 185). This connects with another finding in the literature, which suggests an increased role for strategic communication (by think tanks, policy planning groups, and non-governmental sources) in the direct publication of news, commentary, and analysis on the internet (Boykoff & Yulsman, 2013). Once we acknowledge that non-mainstream media are part of this communications complex we also must notice the communicative infrastructure and propaganda capacity (lobbying and public relations) marshalled by corporate (and other) interests in this debate.

Moving beyond the analytical privilege given to the mainstream media in much communication scholarship, we can refocus on the communicative activities and strategies of social interests. In the case of climate, corporate interests have adopted two main diverging strategies with significant consequences for their communicative activities.

## The merchants of doubt and the corporate capture of the climate debate

It was not until the late 1980s that transnational businesses responded significantly to the threat of climate change. There were different factions and interests within what has been called the corporate 'sustainable development historical bloc' (Sklair, 2000) – that set of key corporations that take leadership, planning, and influence on sustainable development policy as a mission for themselves, and on behalf of the wider business class. The extractive and automotive industries have interests in climate change policy, given their potential impact on business-as-usual practices and strategies. In the US, recent research points to the significance of the coal, rail, steel, and electric utilities in the corporate-led climate change counter-movement (Brulle, 2019). The insurance and reinsurance sectors, though their interests are obviously different, are also important. As Pulver puts it, 'competition between firms over conceptions of profitable firm action in the face of an environmental challenge, such as climate change, is a site through which the possibilities and limits of greening capitalism are constituted' (Pulver, 2007: 50).

Though there were many initiatives, two are of note. The first was the creation of the contrarian Global Climate Coalition (GCC) in 1989. The Global Climate Coalition, though part of the attempt by business to exert environmental leadership, was a short-lived venture. GCC lobbying and PR strategy in the early to mid-1990s was undertaken in the full knowledge that the science and forecasting underpinning climate policy was sound. The GCC's own internal scientific assessment had concluded the threat was real (Revkin, 2009) and that 'contrarian theories … do not offer convincing arguments against the conventional model of greenhouse gas emission-induced climate change' (Bernstein, cited in Powell, 2012: 96).

Nevertheless, the GCC helped to stymie progress on climate issues in the early 1990s. But it was not long before cracks began to appear in the coalition. A key moment came when BP,

Shell, Ford, and DuPont withdrew in 1997, just as the IPCC was issuing its second report warning of increased concerns over the role of humanity in causing climate change.

The GCC disbanded in 2002, but its demise did not mark the end of contrarianism. Corporates (such as ExxonMobil and Koch Industries) continued to pursue them, but not always too publicly.

The cause of the split is argued by some to mirror the fundamental economic interests of the firms concerned. However, Pulver shows that economically the interests of ExxonMobil, Shell and BP and the balance of their investments (in extraction versus refining for example) were similar. The difference was that European headquartered corporations (BP, Shell) came to a different calculation of what might work politically than did the US-headquartered Exxon. As Pulver notes:

> ExxonMobil executives were confident that regulation was unlikely and that opposition to regulation was a viable political strategy. In contrast, for BP and Shell managers, regulation was considered a foregone conclusion, and the strategy choice centered on the extent to which the companies would participate in shaping the regulation.
>
> *(Pulver, 2007: 63)*

This analysis strongly supports our argument of the importance of ideas and communication in the assessment and identification of corporate interests and the planning of strategies. We can note that ExxonMobil was never a member of the WBCSD, while Shell and BP were involved from the early days.

Shell and BP (and others) did not vacate the policy field when they left the GCC. Elf (later part of Total) was at this time beginning to pursue a strategy of nominal acceptance of climate change, relegating their overt denial policy (Bonneuil, Choquet, & Franta, 2021). BP and Shell repositioned themselves as responsible and enlightened corporate citizens, joining the Business Environmental Leadership Council (BELC) in 1998. Shortly afterwards the elite global policy planning group, the World Economic Forum identified climate change as the 'most important issue facing business *and the issue where business could most effectively play a leadership role*' (Levy, 2005: 78, emphasis added).

More far reaching was the World Business Council on Sustainable Development (WBCSD). This emerged as a response to the UN-initiated Brundtland Report *Our Common Future* (1987). Amongst a variety of responses, the Business Council for Sustainable Development was created in 1990 (Timberlake, 2006). It represented corporate interests at the Rio Summit in 1992, securing important industry-friendly outcomes. The World Industry Council for the Environment was created by the International Chamber of Commerce in 1993 and then merged with the BCSD in 1995 to form the WBCSD (Najam, 1999).

We suggest that the specific outcomes at Rio pale beside the most significant victory which was the corporate capture of the term 'Sustainable Development', altering how it was understood and used in elite debate and practice (Sklair, 2000). The environmental movement had posed a challenge; in essence that the emerging global ecological crisis was caused by global capitalism and that any solution had to confront the capitalist system. In response leaders of globalising corporations fashioned the idea of sustainable development with the accent not on sustaining the planet and the human species – 'conservation' – but on sustaining development, which came to mean specifically sustaining capitalism with an environmental tinge. As Sklair (2000: 85) describes it: 'From this powerful conceptual base big business successfully recruited much of the global environmental movement in the 1990s to the cause of sustainable global consumerist capitalism'.

It is important to understand this capture of 'discourse' and the realm of ideas is not divorced from practice. *The new definition of 'sustainable development' was henceforth the operating assumption of international policy and action*. This illustrates the argument we made earlier that ideas and practice are intimately related.

It is difficult to tell how much such corporate capture strategy has cost. Capturing sustainable development for the corporate interest requires planning and active agents who implement strategy. The WBCSD played a leadership and organisational role. Najam estimates that, minus in-kind and other forms of support, membership fees alone amounted to US\$3.78 million in 1998. Our calculations suggest this had risen to almost US\$14 million by 2010 almost half of the known total spent on contrarianism by the opposing corporations (Goldenberg, 2013). According to the most recent published WBCSD annual report, membership fees in 2016 amounted US\$14 million, with an annual income of US\$25 million.[2] WBCSD declared a lobbying spend in Brussels between €100,000 and 199,999 in 2020. WBCSD does not appear as a registered lobbyist in the US.

There are few reliable estimates of the resources devoted to climate lobbying by corporations, trade associations, and peak business networks, especially transnationally. Brulle's (2018) analysis of corporate climate lobbying expenditure in the US (where there is mandatory disclosure of lobbying activities, including spending on political campaigns) suggests that

> over the 16-year period from 2000 to 2016, more than \$2 billion was expended on climate lobbying…the amount of lobbying spending on climate change varied significantly over time…[and] the vast majority of climate lobbying expenditures came from sectors that would be highly impacted by climate legislation.

*(2018: 301)*

While it is clear that individual corporations will have different policy preferences and there will be those that lobby in support of climate-related policies, the analytic point here is that there is a significant investment in policy influence and dialogue around climate issues and this is likely to grow as policy making and legislation responds to the 'climate emergency'.

## Manufacture of doubt

It is important to understand that the role of think tanks, policy planning, and lobby groups is multidimensional. They aim to dominate the information environment in a number of distinct public and private arenas and to capture policy. Thus it is important not simply to examine the relative success of contrarianism in relation to media reporting (for example) but in relation also to a wider range of arenas such as the production of scientific knowledge; civil society and the legal system (Miller, 1998; Miller & Harkins, 2010). In the case of climate change contrarianism, rather than attempt to capture policy, the aim has been to manufacture doubt in order to dissipate pressure for progress and delay meaningful policy decisions (McCright & Dunlap, 2010). As one study concludes: 'scepticism is a tactic of an elite-driven counter-movement designed to combat environmentalism… [T]he successful use of this tactic has contributed to the weakening of US commitment to environmental protection' (Jacques et al., 2008: 365).

It is important to recognise that climate contrarians are not a collection of disgruntled or alienated individuals who have come together to support each other and engage in debate about climate science. Instead what we see is a 'movement' of myriad organisations and

groups that have been bankrolled by corporations with direct material interests in frustrating climate action, together with a range of conservative foundations funded by individuals, connected to those corporations.

The strategy of fostering doubt is of course familiar from other science-related public policy issues, most obviously the debate over the health effects of smoking tobacco (Michaels, 2008; Oreskes & Conway, 2010). In relation to climate policy Brulle argues:

> we cannot refer to the organized efforts to block or delay climate action in monolithic terms. Rather, these efforts form an amalgam of loosely coordinated groups that can be understood as a countermovement. This integrated network of organizational relationships (sometimes termed the "denial machine") exists to influence the public, media, and political arenas to slow or stop climate action.
>
> *(2019: 608)*

Since the split in the corporate community over climate change around the turn of the century, the contrarian strategy was developed and deployed. Contrarianism appears to have noticeably grown from around 2006 and intensified in the period before and after the Copenhagen climate conference and 'climategate'. As the contrarian viewpoint became increasingly marginalised and almost invisible in peer-reviewed scientific literature the contrarian movement simply by-passed processes of scientific scrutiny and began to self-publish, and aggressively promote, their analysis of climate. This can be seen in the sheer volume of output from conservative think tanks, which are the overwhelming producers of contrarian books (Dunlap & Jacques, 2013).

It is clear that significant sums of money have been ploughed into the contrarian movement. It is difficult to tell how much because the funding relations are not transparent. One of the most significant early funders of climate sceptic think tanks was ExxonMobil, which published the names of organisations it supported and the amounts it gave them over the years on its website. It was on the receiving end of a barrage of negative publicity and as a result in 2008 stated 'we will discontinue contributions to several public policy research groups whose position on climate change could divert attention from' discussion on how to 'secure the energy required for economic growth in an environmentally responsible manner' (Adam, 2008). Exxon did cut some funding streams as a result, though not all. (Adam, 2009) However, data suggest that the decline in Exxon funding has been made up many times over by the Oil executives the Koch Brothers and by the Donors Trust, a secretive organisation that seems to exist to attempt to disguise the sources of funding going into climate contrarian causes (and other conservative preoccupations). According to an analysis of IRS filings from Koch family foundations produced by Greenpeace USA, the Koch's donated over $145m to more than 90 different groups associated with climate denial between 1997 and 2018 (Greenpeace, 2018).

Since its creation in 1999, Donors Trust (and the affiliated Donors Capital Fund) has given over $470 million to support climate contrarianism (Redfearn, 2015). The donors use the Trust as a 'pass-through', according to Marcus Owens, the former director of the IRS Exempt Organizations Division, now in private legal practice. 'It obscures the source of the money', he notes. 'It becomes a grant from Donors Trust, not a grant from the Koch brothers' (Abowd, 2013). According to the Centre for Public Integrity 'donors can open an account and protect their identity from the public and even the recipient of their grants' (ibid). All these funding connections feed through into a very large-scale effort to foster doubt on the science of climate.

There are myriad think tanks and other organisations all of which appear to be separate from each other but which are singing from the same hymn sheet. The web of contrarianism is most developed in the US where large and well-known think tanks such as the American Enterprise Institute, the Heritage Foundation, and the CATO Institute work alongside a whole host of lesser-known bodies including the Heartland Institute and the Committee for a Constructive Tomorrow. The reach of climate contrarianism is, however, worldwide, with think tanks receiving funding in Australia and all across the EU. The organisations involved try and present themselves as basing their arguments on science. For instance, the UK-based Global Warming Policy Foundation claimed that it had found 900+ peer-reviewed papers supporting scepticism on climate change and refuting 'concern relating to a negative environmental or socio-economic effect' of climate change 'usually exaggerated as catastrophic' (Global Warming Policy Foundation, 2011). However, analysis by the blog *Carbon Brief* showed that 'nine of the ten most prolific authors cited have links to organisations funded by ExxonMobil, and the tenth has co-authored several papers with Exxon-linked contributors'.[3]

## Effectiveness and outcomes

To be successful, the strategy of climate contrarianism does not need to convince scientists, policy makers, or even a majority of the public. It needs only to foster the conditions under which meaningful action on climate are seen as too difficult or too politically costly. In other words, the strategy is largely elite focused, rather than mainly aiming to influence public opinion. Nevertheless, it does involve relentless advocacy which seeks to influence the news media, public opinion, the scientific debate, and most obviously the decision-making process. It is notoriously difficult to pin down specific policy effects, but the case of climate contrarianism is unusually clear because of the clarity of the scientific consensus. This is emphasised by the fact that the climate contrarian movement is almost entirely the product of funding from corporations and conservative foundations.

When we turn to measures of media coverage or public opinion we can be reasonably sure that climate sceptic views in the US and UK (where the movement is the most active) are in part the product of contrarian communications. We can reasonably conclude that contrarian campaigns in the UK and US have had some effect on popular opinion (Painter & Schaffer, 2018). Another Anglophone nation, Australia, also fits with this analysis (see Hornsey et al., 2018). It is important to note that this is by no means a majority and polls show that climate scientists are the most credible sources for a significant majority of the population in the US and the UK (as they are in other countries). It needs to be additionally emphasised that there is no clear relationship between public opinion and national, far less international, decision-making.

Turning to policy questions we can see that the general drift of international policy making is undergirded by the scientific consensus. Whether and to what extent the slow pace of progress is attributable at least in part to contrarian campaigns requires careful analysis as there are a variety of other factors including inertia, geopolitical interests, and corporate decision-making (Stoddard et al., 2021). However, we can note that some scholars claim that 'the overall activities of the conservative think tanks appear to have played a central role in generating congressional opposition to the Kyoto protocol' (Dunlap & McCright, 2010: 247).

But considering the impact of contrarian strategies on climate is only to consider one of the two main corporate/conservative strategies we identify. What of the other major approach adopted by corporate actors, namely, the corporate capture of environmental policy?

Sklair (2000) charts how environmental activism by leading TNCs dating back to the early 1970s, intensified throughout the 1980s and 1990s, resulting in an important ideological and practical victory wherein the radical 'limits to growth' thesis was reformulated first as sustainable development (1987), then partnered with sustainable consumption, fusing into the common sense, and highly business friendly, notion of sustainability. This discourse is now thoroughly emptied of its original charge (that there are limits to growth and capitalist-led development, that growth trumps all other policy, moral and ecological considerations, etc). Sustainability is now understood as continued growth, but with some optional environmental extras. Establishing this understanding in policy circles is the outcome of an enormous communicative effort by corporations and their peak business associations, targeted at key decision-making and policy planning fora (such as the World Summit on Sustainable Development and COP conferences), and transmitted via policy planning networks and think tanks.

The emergence since the Paris climate summit of net zero as the dominant metric and mantra within climate policy networks is arguably a key example of how threats to business interests have been tamed. Net zero is a very flexible and business-friendly framework for addressing the climate challenge. Real emissions cuts and changes to business practices and strategies can be postponed as net zero targets are set for decades hence, meaning that impacts on short-term profitability are contained. The prominence of the idea of net zero can be explained in part by its relentless promotion within elite policy planning circles. *The idea is powerful because it is being championed by powerful interests*. With so much of the technology to deliver net zero hypothetical and untested a realist policy assessment might suggest that this is an empty and potentially dangerous idea.

> We, the scientific community, responded oddly to absence of effective international energy and climate policy. Instead of sounding a strong alarm, we added climate scenarios with massive "negative emissions" to IPCC documents. These are imaginary reductions…[the] Implausibility of negative emissions on the required scale is readily apparent.
>
> *(Hansen, 2018: 44)*

However, net zero is politically convenient as it enables corporations to claim to be working towards climate solutions in timeframes and in stages that current executives are unlikely to be easily held accountable for.

The corporate response to climate change is shaped by a number of interrelated factors:

> strategy was decided based on socially generated assessments of the state of climate science, the likelihood of greenhouse gas regulation, and the level of public interest in the climate issue. Moreover, these assessments reflect the embedded-ness of oil company executives in company-specific scientific networks and national policy fields and not a global outlook commensurate with the companies operational reach.
>
> *(Pulver, 2007: 64)*

What the major oil companies hold in common is the pursuit of the most profitable policy on climate – their different strategies reflect their differentiated assessments of how policy, legislation, and stakeholder sentiment are likely to move on this issue in the medium term. Levy's (2005: 74–75) research on the oil and automotive industries supports this reading, suggesting that the post-2000 corporate accommodation of climate policy represents the

ongoing assembly of an historical bloc involving key corporations, government agencies, NGOs, and other intellectuals and experts to establish the norms and policies of a new (and clearly neoliberal) climate regime. The emerging worldview is one where climate mitigation is understood in terms of ecological modernisation, allowing for 'win–win' scenarios for those businesses best able to adapt.

## Conclusions

Our examination of the communication of corporate climate strategy has focused on the communicative strategies adopted by the oil industry in particular over the question of climate change and renewable energy. We have not discussed how the activities of the industry has been modulated by other factors including pressures from government and international decision-making fora, or from civil society and popular opinion. We do not dismiss these as irrelevant but our brief to examine corporate communication activities meant we focused on the two major strategies adopted by the oil industry following the split in the industry in the 1990s. What we see is the determined attempt by one faction (represented by ExxonMobil and the Koch Brothers in particular) to deny the science on climate, presumably making the calculation that this has a chance of political success in the US where they are headquartered. By contrast, the other industry faction notably associated with Shell and BP (and many others) has adopted a strategy of some investment in renewables and an acceptance that climate change is happening. They have devoted their attention to inflecting environmentalism so that it does not threaten profit making. This is evident in the corporate capture of the practical meaning of the term sustainable development and the widespread adoption of market-based 'solutions' to climate by governments. A constant feature of the business strategies of the 'carbon majors' in recent years has been to consolidate fossil fuel production, despite support for various climate initiatives (Kenner & Heede, 2021). The heightened role for corporate social responsibility among these companies is not an aberration but strongly related to their strategic attempt to avoid regulatory impacts on their business model.

Our key conclusion is that it is important to examine communication throughout environmental economics, politics, and culture and not just in relation to the mass media or the field of journalism. For us, communication power is about both processes and outcomes which are not independent of each other but intimately related precisely by circuits of communicative power. (Philo et al., 2014)

## Notes

1  In this paper, following O'Neill and Boykoff (2010), the term 'contrarian' will be used since it more adequately and specifically refers to those 'who critically and vocally attack climate science' as opposed to those who are misinformed, unconvinced or properly 'sceptical' about matters of public debate.

2  http://docs.wbcsd.org/smt/agm/mexico2017/wbcsd_AGM_document_2017.pdf

3  Note that this analysis has been 'rebutted' by the compilers of the list. They conclude that 'The scientists unjustly attacked in the Carbon Brief article are not "linked to" [funded by] ExxonMobil. The Carbon Brief and any other website perpetuating this smear should issue a retraction.' (Are Skeptical Scientists funded by ExxonMobil?, Popular Technology, May 10, 2011 http://www.populartechnology.net/2011/05/are-skeptical-scientists-funded-by.html) It can be noted that in the cases cited in this article, there is no reason to doubt that both Idso and Michaels have been funded by ExxonMobil since they have both admitted it and the evidence for this was included via links in the original Carbon Brief report

# Further reading

1 Bonneuil, C., Choquet, P-L. and Franta, B. (2021) 'Early warnings and emerging accountability: Total's responses to global warming, 1971–2021', *Global Environmental Change*, 71: 102386. https://doi.org/10.1016/j.gloenvcha.2021.102386.

Based on interviews and archival research this paper charts the evolution of Total's policy response to the science and politics of climate change. The article offers a valuable longitudinal analysis of corporate positioning on climate issues spanning three decades.

2 Farrell, J., McConnell, K. and Brulle, R. (2019) 'Evidence-based strategies to combat scientific misinformation', *Nature Climate Change*, 9: 191–195.

This article provides an overview of the funding, organisational power and institutions who have been central to promoting scientific misinformation. With a more informed understanding of the scope and scale of climate misinformation the authors propose a number of strategies to counter climate denial, including greater public awareness of climate misinformation and transparency around the funding of climate advocacy coalitions and organisations.

3 Supran, G. and Oreskes, N. (2017) 'Assessing ExxonMobil's climate change communications (1977–2014)', *Environmental Research Letters,* 12: 084019. An empirically detailed exposition of Exxon's corporate communications strategy and tactics spanning the era when the company began to mobilise and organise to influence climate change policies.

4 Supran, G. and Oreskes, N. (2020) 'Addendum to 'Assessing ExxonMobil's climate change communications (1977–2014)', *Environmental Research Letters*, 15: 199401. https://iopscience.iop.org/article/10.1088/1748-9326/ab89d5.

An expanded analysis of Exxon's deny and delay strategies, using newly available data, comprising peer reviewed, non–peer reviewed and internal documents. The analysis suggests Exxon and ExxonMobil misled audiences with 'discrepant communications', with misinformation published in advertorials, and supported direct and indirect climate denial.

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# PROTESTS, PUBLICS AND PARTICIPATION (STILL IN AN ENVIRONMENTAL AGE)

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In Iran's Khuzestan Province, thousands ignore harsh security measures and the fifth wave of coronavirus surging across the country to protest water shortages and rising temperatures. They tell the BBC: 'We want water, just water, we don't have water'. Three young men are reportedly shot and killed by security forces. Supreme leader Ayatollah Ali Khamenei concedes on his Instagram channel: 'Officials are obliged to address Khuzestan's problems' (Fassihi 2021). Outside Australia's Parliament House, an Extinction Rebellion protester is photographed and filmed with her hands glued to the pavement. Nearby, a baby's pram burns, adding to the stock of media images (of heat – wild fires, exhaustion; of water – flooded towns, coastal storms) that have come to symbolise impending climate-related doom with an ease not imaginable two decades ago. Nevertheless, Prime Minister Scott Morrison communicates an old message when he tells a media conference that the protesters are un–Australian and selfish (McHugh et al. 2021). In the United States, a small group gather on a street corner to protest a new distribution warehouse in the suburbs of Chicago in the United States for the giant retail chain, Target. Protesters claim that increased traffic will lead to more air and noise pollution and danger for pedestrians in their neighbourhood. It is, protesters claim in a local newspaper, a case of 'environmental racism' (Soglin 2021). In Sweden, Greta Thunberg protests outside parliament, marking the third anniversary of the first 'Fridays for Future' school strike that was recreated across the world to call for climate action. 'In one way of course I haven't achieved anything', Thunberg tells journalists. 'In another way I have made lots of friends within the movement and we have been able to organise mass protests and it feels like more people are starting to wake up and demand change' (Reuters 2021). In Thailand, UNESCO includes the 480,000 hectare Kaeng Krachan Forest[1] Complex on the World Heritage List despite decades–long protests by the indigenous Karen residents, whom international human rights websites claim have been forcibly evicted, their houses burnt and their right to cultivate food removed (AFP 2021).

These are a few of the many faces of mediated environmental protest in the third decade of the 21st century. There are recognisable practices and patterns: the labels of deviancy and damage, of illegal and uncivil activity and disagreements over crowd size. There are powerful symbols that carry across media, evoking engagement, emotion and response. There are elite interests, old discourses, political actors and lay voices. But there are also new configurations and practices playing out within and across transnational networks and publics.

These are the focus of this chapter. We first outline our understanding of the relationship between protest, publics and changing media practices and technologies, before illuminating some complex shifts via a case study of environmental protests across four decades of conflict over native forest logging in Tasmania, Australia's southern island state. This case identifies not only deployments of communications power across this period but also how new communication interplays scale-up protests from the local and national to the international and transnational levels, and back again (see also Lester, Chapter 17, this volume).

## Protest, representation and connectivity

Protests and demonstrations have increasingly sought to highlight issues of global scope and transnational concern (Cottle and Lester 2011a, 2011b). The environment and climate change, as well as global justice and inequalities of trade, war and peace, human rights and humanitarian catastrophes, have been the focus of major protests in recent years. The crises and conflicts spawned by today's globalizing late modernity, it seems, can also summon into being new social movements, coalitions of opposition and voices of dissent worldwide. These can be globalizing in their communicative intent or forms of political action, lending substance to claims about emergent 'global civil society' and 'global citizenship'.

Mass protests, coordinated and conducted simultaneously on different continents, in different countries and across major cities, have proved capable of mobilizing hundreds of thousands of people, sometimes millions, around the globe. Such protests – for example, the school strikes over climate change – are designed to influence elite decision-making and challenge the deliberation of policies behind closed doors, policies that if implemented will impact populations internationally or globally. And some protests, though involving a handful of protesters only, can also resonate nationally, internationally and transnationally – for example, a single protester camped in trees in forests threatened by logging or a handful of people gathered on a street corner in Chicago.

Protests can both engage and instantiate global forces of change – even when they are enacted locally or directed against national institutions and governments. Through creative protest repertoires, campaigners have sought to bring recognition to issues of global concern, secure legitimacy for their cause, and mobilise identities and voices of support worldwide. The 'transnational' in the contemporary politics of protest, however, is not only characterised by political reach, motivating ethics or geographical scale – all of which invariably extend beyond sovereign national borders and parochial frames of national understanding. Crucially the 'transnational' in transnational protests and demonstrations fundamentally inheres within *how* they become communicated and mediated around the globe.

It is in and through the flows and formations of worldwide media and communication networks that transnational demonstrations principally become *transacted* around the planet. Even when physically enacted in particular locales, cities, countries or indeed simultaneously on different continents, it is by means of contemporary communication networks and media systems that they effectively become coordinated, staged for wider audiences and disseminated around the world. And it is here too that they often discharge their affect and effects on supporters, wider publics and different decision-makers; whether by redefining the terms of public discourse, bolstering solidarities and mobilizing identities of opposition, or shifting cultural horizons and seeking to influence political elites and government policies.

Through the internet and social media, protests and demonstrations today can be coordinated and communicated internationally and it is by these same means that some also become exclusively conducted – whether for example, through online petitions, the mobilisation of

consumer boycotts or digital activism (Dauvergne and LeBaron 2014). New means of re-cording, storing and disseminating images of protest have also eased the practical, if not ideological, cross-over of scenes of dissent into wider communication flows and mainstream media (Markham 2014; Poell 2014; Segerberg and Bennett 2011). And traditional news me-dia continue to perform a critical role in defining, framing and dramatizing protests and demonstrations and, thereby, helping to publicly legitimise or de-legitimise them for mass audiences and readerships (Hunt and Gruszczynski 2021; Hutchins and Lester 2015). It is in and through this fast-evolving complex of interpenetrating communication networks and media systems, then, that protests and demonstrations today principally become transacted around the world.

Whether the 'scale shift' is upwards from the local/national to the transnational and global, or downwards from the transnational to the national/local (Tarrow and McAdam 2005), it is in and through communication networks and the pervasive and overlapping me-dia ecology that oppositional currents and movements for change are principally conveyed. And it is here too that protests effectively register more widely. Their political efficacy need not always, however, be measured in terms of exerting measurable, direct and radical effects on political elites or power structures. Such moments of decisive impact are historically rare. Transnational protests, like protests more generally, can be deeply implicated in processes of change nonetheless: building and mobilizing support, redrawing cultural and political horizons, influencing corporate and industrial behaviour, or even helping to create a pre-figurative politics based on participatory practices and ethical norms of equality and justice.

Lest we should succumb to either blanket pessimism about the power of protests and demonstrations or naïve celebration of the same, we need to situate them in relation to wider historical forces of change. We need to contextualise their mobilizing force within civil soci-ety(ies) and attend to the permeability of surrounding political structures and institutions to the voices of dissent. It would be simplistic to approach, much less seek to explain or theorise, transnational protests as a simple reflex of available media technologies. Contemporary com-munication and delivery systems can certainly facilitate and shape the communicative forms and enactments of protests, but this should not be interpreted as a straightforward causality, much less media and communications determinism. Composed of overlapping media for-mations, both old and new, and accelerating, horizontal and vertical communications flows incorporating virtual, interactional and user-generated capabilities, today's complex media and communications ecology offers unprecedented opportunities for the wider enactment and diffusion of political protest – from the local to the global. But how these opportunities become realised, negotiated, challenged and contested in practice and with what repercus-sions on protest movements and coalitions, on their goals and tactics, supporters, publics and relevant elites, clearly demands detailed empirical exploration and careful theorisation.

The complex and evolving interplay between protests and media and communications cannot be reduced to one-size-fits-all. Coordinated, networked actions spearheaded by new transnational movements and loosely affiliated campaign groups continue to stage sieges and spectacular 'image events' (DeLuca et al. 2011). These are often deliberately performed in front of the world's media or uploaded to them on the basis of a media-savvy understanding of journalist news values and news organisations' predilections toward the dramatic, spectac-ular and revelatory. Actions are recorded and communicated directly by protesters through new social media and alternative news sites, as well as by members of the general public who 'bear witness' via phones and social media. When uploaded and circulated via the internet, these new forms of participation can serve to alter the balance of communicative power (Allan and Thorsen 2009; Gowing 2009).

How deeply social media's entry onto the protest landscape – Twitter stepped into a front-line role in 2009 – has infused and altered the logics of protest or produced long-lasting and real political change remains debated (see, for example, Dauvergne 2017; Kavada and Poell 2021; Morozov 2011; Poell 2014). For the Occupy movement, Twitter acted as a switching mechanism (Castells 2009), helping coordinate and organisation building and illustrating 'a monumental shift in the ability of everyday citizens in repressive societies to document and express their desires for social change' (Tufekci and Wilson 2012: 377). The massive increase in social media use has accelerated the speed of activist communications, particularly in relation to the transfer of images and visual materials. These communications are now reaching large audiences on their own, without the support of broadcast and other news media. Yet, the transfer of visuals by social media has also been observed to replicate earlier protest paradigms, where activists and journalists turned the protest into spectacle in order to attract attention (Poell 2014).

Likewise, Castells' and others' celebration of social media-enabled networks in creating horizontal communications and leaderless movements and thus changing politics has been tempered by more and more exposure of the hierarchies sitting away from the public gaze (Fuchs 2014; Gerbaudo 2012); warnings that protest needs to remain anchored in political and institutional structures, rather than valourised for amorphousness (Markham 2014); and increasing caution in relation to the 'datafication' of political engagement or the numerical measurement of political 'actions' (Boyd and Crawford 2012; Mah 2017). Numbers provide little insight into the depth of engagement beyond the view, the click or the share and give away almost nothing about what compels individuals to take action or the organisational practices now being driven by the analytics to which the numbers are continually subjected (Karpf 2016). Every connection is not equivalent to every other connection; frequency of contact does not mean a relationship is strong; and scepticism, context and historical perspective are required more than ever (Boyd and Crawford 2012: 671; Hutchins 2016: 495).

In embracing corporate-controlled social media, protest organisers have little control over the architecture of the spaces through which they communicate (Poell 2014: 723; see also Segerberg and Bennett 2011). Significantly, they can lose control over the increasing amounts of data they produce through their fundraising efforts or campaigns encouraging social media-enabled 'actions'. Julie Uldam (2018) describes this as 'the double-edged sword of visibility', where social media, in becoming key platforms for activists' calls for action and communication with the wider public, have enabled corporations and public authorities to collect information about protest activities. As a result, social media are platforms for surveillance, 'tracking, for example, (potential) customers' engagement with Facebook brand pages and discussion groups' (Uldam 2018: 44). In an age of 'predictive policing' (Andrejevic 2017), in which data are paramount, the capacity of governments and private corporations to predict and contain collective behaviour through the identification of patterns of online use is increased.

Brand-focused activism has expanded in consort with social media platforms. With consumers firmly in their sights, either directly or via the chains of corporations that produce, transport and sell consumer goods, various campaigns have entered and remained in the public consciousness through the sheer volume of social media activity and associated news media reporting they have generated (Dauvergne and LeBaron 2014). There are notable examples of campaigns that have succeeded in generating, through consumer activity, changes to individual purchasing behaviour and thus altered the procurement and manufacturing practices of companies whose names are attached to targeted products. Yet, their link to sustained protection of environments is still unclear, as the continued destruction of tropical forests across the world to make way for palm oil plantations attests.

And while both indigenous and scientific actors might warrant central roles in environmental protest, an uneasy relationship between environmental NGOs and scientific organisations and indigenous activism continues in many parts of the world. Scientists can not only continue to be wary of becoming key actors in environmental conflicts, but seek to 'communicate' their science with little regard or understanding for the complexity of either publics or communications (Lester and Foxwell-Norton 2020). Meanwhile, a study of Australian environmental leaders, for example, identified only a handful of indigenous leaders willing to be identified as part of the environmental movement, given its long-standing commitment to notions of uninhabited 'wilderness' (McGaurr et al. 2016). As Patrick D. Murphy identified in his Amazon-focused study of environmental discourses, while the experiences of indigenous communities vary greatly, it has been the case since the 1970s that for indigenous place-based activists to make their concerns visible to the outside world, they 'have had to invest, ironically, in Western ideas about what authentic Amazonian Indians are supposed to look like, act like, and even say' (Murphy 2017: 152).

## Environmental protests and transnational publics

Our case centres on Australia's longest-running environmental dispute – the four-decade-long Tasmanian forests conflict. In following the media and communications and identifying associated patterns, processes and practices as they have flowed in and around this specific conflict over time, we are able to consider environmental politics, protests and publics within (a) the broader contexts of shifting relations between global and local risks and public concerns, (b) the emergence of transnational and global governance, corporations and decision making, (c) the breaking down and reconstruction of nationally bounded societies and (d) the pressures on landscapes and communities brought about by expanding resource procurement and global trade.

The conflict over Tasmanian forests first emerged in the 1970s when Japan's demand for pulp and paper outstripped its capacity to maintain supply from its own forests. This led to the era of what has been described as 'factory forestry', with the amount of woodchips being produced in Australia increasing from none to 1 million tonnes in the five years to 1974–1975 (Davis 1995: 19). By 2008, the annual export of woodchips from Tasmania alone was 2.5 million tonnes, with 75% of the total destined for Japan. But in early 2010, the biggest downturn in demand in the history of the Tasmanian forestry industry was underway, with an estimated 1,000 workers losing jobs that year. While initially the slowdown was blamed on the global financial crisis plus other plantation-based exporters coming online in countries such as Chile, South Africa and Vietnam, it soon became clear that international discomfit over the procurement of woodchips sourced from native forests was a contributing cause. Australian NGOs had campaigned for a decade in Japan, attempting to convince Japanese companies that Tasmanian forestry practices were unsustainable, while also continuing direct action protests in the forests. This was a long-running tactic but shifted to communication media strategies aimed squarely at the Japanese market. There had been little evidence of impact until 2010, when the forest industry began to publicly acknowledge that 'certification' and 'social licence' were essential for securing long-term international markets for its products (Lester 2019, see also Chapter 17 this volume).

International scrutiny of industry activities has been a feature and an ambition in Australian environmental politics since the blockade of the Franklin Dam in the early 1980s. The accidental torching and death of Australia's largest tree and the world's largest flowering plant, known as El Grande, during forests operations in 2007 attracted unwanted publicity

for Forestry Tasmania in the UK from the BBC, *The Observer* and *The Guardian* that then cycled back to feature in local news coverage and political debate (Lester 2010). Another successful attempt to invoke the spectre of the transnational community of concern occurred when footage of a 'sledgehammer attack' by a forest worker against protesters was uploaded to MySpace and then YouTube. The video became one of the most watched videos on You-Tube about the Tasmanian forests, displaying the violence in unedited form for journalists and Internet users, locally, nationally and internationally (Lester 2012). For a fortnight after being posted, the video received detailed attention from print and broadcast news outlets and was shared by members and supporters of various environmental groups beyond Tasmania. The shocking nature of the footage and viral distribution of the video obligated both government and industry representatives to answer difficult questions posed in news media. 'Why spend millions of taxpayers' dollars portraying our little island as a haven of tranquility when YouTube and TV news programmes around the world are filled with horrific images of sledgehammers viciously attacking greenies' cars in the deep forests?' one local opinion piece asked (Neales 2008).

The struggle escalated when Tasmania's largest company and landowner Gunns proposed a highly controversial AU$2 billion-plus pulp mill for northern Tasmania (Stedman 2010). It began its campaign by taking legal action against 20 environmentalists accused of conspiring in a 'malicious campaign against Gunns' (Beresford 2015: 207–213). Widely condemned nationally and internationally, it aimed to deter protesters from 'speaking out'. Meanwhile, a new company emerged to take a leading role in the Tasmanian forestry industry and accompanying environmental conflict. Via a relatively complex supply chain, Ta Ann Tasmania – an offshoot of Malaysian company Ta Ann Holdings, one of the six major and controversial forest companies based in Sarawak (Straumann 2014) – supplied wood from Tasmanian regrowth and plantation eucalypt forests as a veneer to Japanese manufacturers and retailers of flooring.

By 2011, Ta Ann Tasmania was at the centre of environmental protest that included spectacular raids on loading equipment at commercial wharves and on logging machinery in the forests. Of note was the production of a report 'Behind the Veneer: Forest Destruction and Ta Ann Tasmania's Lies', by the Huon Valley Environment Centre, a small local direct action protest group. The report claimed that Ta Ann was 'misleading' its Japanese corporate customers by describing its 'eco-plywood' products as environmentally friendly when they were not sourced from plantations as claimed (Huon Valley Environment Centre 2011). The report was released in early October 2011 to a small group of supporters in a hired conference room in central Hobart. While no Tasmanian journalists covered the event, the report was promoted by environmental groups in Japan – in particular, the Japan Tropical Forest Action Network, local Japanese branches of the Rainforest Action Network and Friends of the Earth, all of which had been monitoring the situation in Tasmania for much of the previous decade and with increasing focus since Ta Ann had begun its Tasmanian operations. Together, these groups organised for the report's author to visit Japan in November 2011 to speak at a conference, meet with contacts in the Japanese companies buying and selling Ta Ann Tasmania products, and to garner news media coverage (Nikkei Ecology 2012; Shizuoka News 2011).

Another key component of the campaign was centred on a small platform in an 80-metre-high eucalypt tree in Tasmania's remote southern forests, where activist Miranda Gibson lived for more than a year. Alongside providing an unrelenting cyber-action campaign, a daily blog and regular media releases, she provided a symbol of commitment and resistance that travelled transnationally across various media and political platforms and channels (see observertree.org). With access to the Internet provided by the construction on a nearby mountain of a new telecommunications tower and thus solving the problems that

Camp Florentine had experienced, she was able to provide the technological and human resources needed to run a successful environmental campaign, supported by the network of Australian, Japanese and international environmental organisations (Lester 2014).

Ta Ann Tasmania eventually announced that it was sacking 40 workers from its timber veneer mills in Tasmania, blaming 'persistent market attacks' for halving sales of its Tasmanian timber products to Japan (ABC News 2012). These 'attacks' were described by Australian industry lobbyists and politicians as 'terrorism', 'sabotage', 'economic vandalism' and 'blackmail'. Heated debate over the legitimacy of so-called market attacks by environmental groups ignited across online, print and broadcast media forums, while news reports continued to appear about the contentious issue of appropriate certification for forestry exports. Pressure mounted in negotiations on industry restructuring, and public diplomacy missions were launched by the Tasmanian government to Japan and Malaysia.

In 2014, the new conservative Australian government with Tasmanian government support took the extraordinary step of applying to UNESCO to delist more than 70,000 hectares of forests from the Tasmanian Wilderness World Heritage Area. Protesters responded by calling for donations through political online crowdfunding organisation GetUp! to pay for billboard space on the road between the Doha airport and the Qatar National Convention Centre, where the 2014 UNESCO World Heritage Convention was held. The resulting billboards displayed a photograph of a massive eucalypt tree with the words: 'The people of Australia thank the World Heritage Committee for listing Tasmania's beautiful forests in 2013' (GetUp! n.d.). The committee took eight minutes to deny the government's request to delist the forests (Beresford 2015: 375).

Since 2014, the ideological position and political networks that led politicians to continue to support an industry despite evidence of highly damaging environmental, social and corporate practices (Gunns' long-serving CEO eventually pleaded guilty to insider trading) have far from disappeared in Tasmania. Nor have environmental protesters withdrawn into complacency or exhaustion after decades of conflict. Rather, efforts to embed and contain environmental protests continue with weekly protests in the forests and on the lawns of parliament, and within parliament and the courts as the state government continues to attempt to introduce laws to ban protest activity at work-sites (Killick and Sato 2021). Their aim: to contain potentially powerful shows of dissent that will travel beyond the island's borders to encourage protest, publics and participation.

## Conclusion

Around the world, the impacts of climate change and increased resource extraction and demand are producing flow-on effects in terms of protest activity and conflict over environmental futures. Deploying new forms of media and communication technologies and practices, translocal and transnational publics continue to emerge to demand a voice, as well as legitimacy and influence, in the negotiations and decisions. Consumer and media power coalesces transnationally to produce market and industrial change, which in turn effectively leads to local political impacts. A lack of resources and poor intercultural knowledge, including cross-language skills and understanding of media and political logics and systems, still hamper political attempts to harness this power, but environmental activists are using shared concerns and issues to build networks that operate increasingly and effectively across previous boundaries.

Social media-enabled activism is subject to many of the same pressures that have historically accompanied environmental protest, including the political and legal constraints

that are threatened or enacted to protect government and corporate activities from protest – both physical protests that form the basis of media events or internet-based campaigns targeting brands, manufacturers, supply chains and retailers. The spectacular continues to be strategically deployed by activists and, in turn, restricted by claims that challenge the integrity, motivations or commitment of protesters. Celebrity and other spectacular interventions rarely escape these counter-claims given the speed and scale with which messages now circulate. The range of media platforms and associated activities accessed by activists are also in the main readily available to governments and corporations, often more so in terms of financial resources to access space and produce content, if less so in terms of flexibility and creativity of approach. The interaction between social media and news media, rather than social media alone, is seemingly resilient in terms of building the capacity to influence decision-makers. Even if news now manifests in different forms across broadcast, print and digital, concerns about corporate control of social media and other new information platforms re-emerged after only the briefest of hiatuses. These require serious consideration of how environmental protests manifest across corporate or government-owned media predisposed towards pro-market and neoliberal positions (Murphy 2017).

In our case study, Japanese companies on one hand acted as part of a transnational community formed through shared environmental concerns and responsibilities. These companies at the end of complex supply and consumer chains became both, as Nancy Fraser has predicted (2014), targets of the affected (with the affected conceived through both local and global risks), and key decision-makers affecting Tasmania's economic and environmental future. On the other hand, government and forest industry representatives in Australia refused to recognise the legitimacy of these emerging transnational publics and thus misunderstood the likely basis of Japanese corporate decision-making. Terms such as 'terrorism' and 'sabotage' are still deployed to undermine the transnational media and political flows, just as notions of 'civility' and 'toxicity' can act to bound and delegitimise local debate. Paradoxically, however, these efforts make the transnational an even more powerful ambition for local activists (Lester and Cottle 2011a, 2011b). And the outcomes of such efforts are likely to become even less predictable in the multi-directional and layered communication flows that characterise the new political spaces of environmental protest.

## Note

1   Case study research has been supported by the Australian Research Council's Discovery Program (funded projects include DP200103360, DP150103454, and DP1095173), with full findings published in Lester, Libby. 2019. *Global Trade and Mediatised Environmental Protest: The View From Here*', Palgrave Macmillan.

## Further reading

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In studying contemporary environmental protests, it is important to understand the pressures and practices facing industries and businesses operating across global supply chains, fluctuating demand, shifting political and regulatory settings, and corporate competition. This book traces the history of a company whose name became synonymous with Tasmania and the destruction of its forests.

Fraser, Nancy, et al. 2014. *Transnationalizing the Public Sphere*, edited by Kate Nash. Cambridge: Polity. The notion of the public sphere suggests there should be opportunity for all those affected to participate in public debate. Decision-makers will be held accountable through processes of publicity and

the pressures of public opinion. Yet, how does this work when the arenas for politics, law, communications and risks themselves now cross national boundaries, and the relationship between citizens, corporations and decision-makers is complicated by transnational networks of economics and trade, governance and law, and media and communications?

Murphy, Patrick D. 2017. *The Media Commons: Globalization and Environmental Discourses*. Champaign: University of Illinois Press.

The media industries – albeit those selling news, entertainment or information platforms – are key to how we 'know' the environment and what is happening to it. This book unpacks the common metaphors, terms and phrases that shape this knowledge and frame our thinking.

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# 10

# INSIGHTS AND OPPORTUNITIES IN PUBLIC PARTICIPATION PRACTICE

## Applying collaborative learning in environmental policy decision situations

*Gregg B. Walker, Steven E. Daniels and Jens Emborg*

### Introduction

In the 2015 publication, the *Handbook of Environment and Communication*, we three authors contributed a chapter that drew on our work, both collectively and individually, in the field. The chapter, titled "Public Participation in Environmental Policy Decision-Making: Insights from Twenty Years of Collaborative Learning Fieldwork," began by "summarizing the significance of the United States' National Environmental Policy Act as an archetype for public participation policies throughout the world" (Walker, Daniels, and Emborg, 2015, p. 111). The essay subsequently described "the context in which collaborative stakeholder engagement has evolved, particularly in the United States" (p. xx). In light of that context, we drew on our many years of Collaborative Learning field work to present "significant insights about communication, participation, and stakeholder engagement in the environmental and natural resource policy arenas" (Walker, Daniels, and Emborg, 2015, p. 112).

In the years since that essay, our work has continued – participating in field projects in the United States and Denmark. Two of us (Walker and Daniels) have done much of the field work as members of the National Collaboration Cadre of the US Forest Service (https://www.fs.fed.us/emc/nfma/collaborative_processes/default.htm). We have extended our earlier discussions of Collaborative Learning and stakeholder engagement into commentaries on trust in natural resource management (Emborg, Daniels, and Walker, 2020); best practices in environmental policy collaboration and conflict management (Walker and Daniels, 2019); and stakeholder views of public participation in natural resource management (Walker et al., 2019).

This essay, like its predecessor, highlights insights drawn from our Collaborative learning fieldwork and includes new insights not featured in the 2015 chapter. Following that discussion, we consider opportunities in two areas not addressed in the prior essay: the relevance of Collaborative Learning to the climate crisis and Collaborative Learning and innovative technologies.

## Context and background

Public participation in environmental and natural resource policy decision-making is not a new phenomenon. It is codified in the United States in the National Environmental Policy Act (NEPA) of 1969 and subsequently emulated in the environmental policies of countries throughout the world such as, in Europe, the Aarhus Convention of 1998. As reported on the European Commission's website, "the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters was adopted on 25 June 1998 in the Danish city of Aarhus (Århus) at the Fourth Ministerial Conference as part of the 'Environment for Europe' process" and "entered into force on 30 October 2001" (European Commission, Environment Section).

We have discussed NEPA in the 2015 essay, noting that "the architecture of the Act and the various regulations and executive orders that operationalized it responded to public values and interests in a groundbreaking way; it integrated public participation into the environmental planning process" (Walker, Daniels, and Emborg, 2015, p. 112). NEPA did not dictate a specific method of public participation, nor did it refer to "collaboration" in any form.

The Aarhus Convention has specified a number of rights: (1) the right of access to information, including dissemination of information; (2) the right to participate in environmental policy decision-making; (3) and the right to review procedures used to make decisions, including matters of justice and fairness (European Commission, Environment Section). The Aarhus Convention, like NEPA, does not refer to "collaborative" stakeholder engagement, highlighting instead notices of proposed activities and public hearings (UNECE).

Our work in the environmental and natural resource policy arenas began three decades ago, when two of us (Daniels and Walker) designed and facilitated a day-long public workshop that addressed a range of issues pertaining to the health and management of the Illinois River in Southwestern Oregon. On the second day of the "Illinois River Symposium," we introduced "Collaborative Learning" as a methodology for public participation. At that time, Daniels was studying "soft systems methodology" or SSM (see Checkland and Scholes, 1990), specifically in terms of forest policy and ecosystem-based management. Walker was directing a peace studies program and teaching courses in the field of alternative dispute resolution (ADR, including conflict management, negotiation, and mediation). We integrated ideas from these areas, while recognizing the importance of active, experiential learning.

Our earliest projects – the Illinois River Symposium, Oregon Dunes National Recreation Area planning, and Wenatchee National Forest fire recovery planning (see Daniels and Walker, 1996, 2001) – generated significant initial insights about public participation. We recognized that conventional methods, such as public hearings and comment letters, did not seem to have much impact. As we applied our Collaborative Learning ideas in these projects, we learned from citizens that they sought and valued public participation opportunities that were interactive and influential; not simply "command and control" events that checked a box for a government agency.

In a 1996 essay published in *Environmental Impact Assessment Review* (EIAR), we presented Figure 10.1. Titled "Collaborative Learning as a Hybrid," the figure and its accompanying explanation highlighted three of our initial significant insights – that began as speculations. First, we recognized the importance of shared learning; for public participation to be a meaningful part of decision-making, parties needed to commit to learning from and with one another, and participation activities needed to foster learning. Second, we discovered that systems thinking addressed well the complexity of environmental and

*Table 10.1* Collaborative Learning Foundations (Daniels and Walker, 1996)

| Elements | SSM | ADR |
|---|---|---|
| Promotes learning | High | Low |
| Emphasizes systems thinking | High | Low |
| Handles strategic behaviors | Low | High |
| Deals with value differences | Low | High |

natural resource management decision situations and that people – regardless of profession or education – could be very thoughtful systems thinkers. Third, we realized that stakeholders had difficulty working through decision situations that were highly conflictual, and that the discussions and negotiations needed to be structured and guided in a manner that respected value differences and underlying interests. Consequently, we determined that, when both complexity and controversy were significant and shared learning was essential, we could foster participation as mediators and facilitators (Table 10.1).

We have described Collaborative Learning in numerous publications over the years, including the *EIAR* article in 1996, the book *Working Through Environmental Conflict: The Collaborative Learning Approach* (Daniels and Walker, 2001), and most recently an essay about Collaborative Learning and "Best Practices" in *Frontiers in Communication* (Walker and Daniels, 2019). At its core, Collaborative Learning combines systems thinking, conflict management, active learning, and participatory communication.

## Previous insights

In this section, we highlight insights we have gained from the numerous Collaborative Learning projects we have conducted over almost three decades, including work we have done as partners and individually. Before presenting new insights emerging from recent projects and as members (Daniels and Walker) of the US Forest Service National Collaboration Cadre, we will summarize insights featured in the 2015 chapter. The 2015 essay presented seven "insights," and should be consulted for a more extensive discussion of each. They are condensed here into six.

### *Collaboration should be appropriate*

Not all public participation strategies are collaborative. The conventional and often "default" approaches, such as public hearings and public comment periods (e.g., 60 days to submit letters and emails) are not. Hearings and comment periods meet the public participation requirements in NEPA and similar policies (e.g., the National Forest Management Act), thereby checking the public participation "box." Some advocacy groups become very tactical and experienced with these conventional methods, such as flooding a project with comment postcards, letters, and emails; and "stacking" a public hearing with a large group of people requesting speaking time.

We noted in 2015 that "when considering the public's role in an environmental or natural resource management situation, collaboration is not everything and everything is not collaboration" (Walker, Daniels, and Emborg, 2015, p. 114) and we referenced a number of well-cited publications from the last 25 years. We observed that "as collaborative efforts, formats, and venues have increased, a question emerges center stage, one that the cited

authors and other natural resources decision–making analyses have not necessarily addressed in depth" (Walker, Daniels, and Emborg, 2015, p. 114). We recognized this fundamental question that we encountered when we first applied Collaborative Learning in field projects: When should collaboration occur…and should it occur at all? We had to determine if some form of collaboration was relevant or if public participation activities should be conventional (e.g., a public hearing). This general question encompassed more specific issues in any given situation: (1) Is there a need for collaboration (or a requirement)? (2) Is there reasonable collaborative potential (CP); the likelihood that a collaborative effort would be productive? (3) If collaboration is not warranted, what are the public participation alternatives? (4) What doers the "public" value and expect?

As we addressed these questions, studied collaborative processes, and developed, applied, and refined the Collaborative Learning methodology, we generated several important conceptual features of collaboration and incorporated them into our Collaborative Learning public participation work.

## Tech-Reg and appropriate collaboration

Drawing on earlier work (Daniels and Cheng, 2004; Walker, 2004), we envisioned two fundamental approaches – "x/y axis trajectories" to decision-making, conflict resolution, and public participation in the natural resource and environmental policy arenas a few years ago: "Tech-Reg" and "Appropriate Collaboration."

We explained in the earlier chapter that

> The 'tech-reg' trajectory accommodates the view that the management of environmental concerns, natural resources, landscapes, and ecosystems has been defined to a great extent by two driving forces: the value placed on *technical* solutions to problems and the perceived need for *regulations* to implement and enforce those solutions.

This has arguably been the dominant default or status quo approach, one that privileges "agencies over communities and technical expertise over citizen input and traditional (local, indigenous) knowledge" (Walker, Daniels, and Emborg, 2015, p. 115).

## Appropriate collaboration

In contrast to tech–reg approaches, "appropriate collaboration" (AC) encompasses methods and frameworks that emphasize comprehensive collaborative activity. As we have written, "AC approaches emphasize access, dialogue, deliberation, mutual learning, and meaningful decision-space" (Walker, Daniels, and Emborg, p. 115). Appropriate collaboration approaches are both learning centered and decision oriented. They can be conceived of as four "Ds": discovery, dialogue, deliberation, and decision. The 2015 chapter presents a table that compares Tech-Reg and Appropriate Collaboration in a number of areas, such as power, goals, and knowledge.

Although Figure 10.1 places Tech–Reg and AC on different axes, they are not mutually exclusive. Many environmental and natural resource management situations embrace some degree of both. A wind turbine project, for example, would rely on technical information and need to be compatible with local, state, and federal regulations. Stakeholders could be engaged collaboratively to help determine sites, noise abatement efforts, grid construction; any issue that was within the project's decision space.
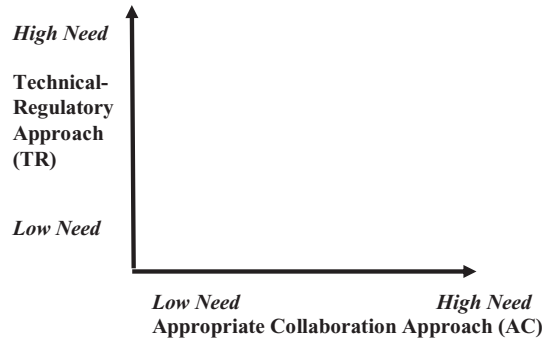
*Figure 10.1*  Tech-Reg and Appropriate Collaboration

### *Situation assessment is the essential first step*

Determining the nature and degree of collaboration as well as technical and regulatory factors begins with an assessment of the conflict or decision situation. Assessment is research – collecting relevant data about the situation and analyzing that information. That analysis provides the foundation for the development of the planning, decision-making, and public participation strategies.

### *Assessment information*

Some assessment work is conventional; learning about a situation through surveys, interviews, focus groups, and artifact analysis. Relevant parties (e.g., stakeholders and the general public) can be surveyed via mail, telephone, or the internet. Agencies and organizations can guide the recruiting of participants for focus groups or interviews. Artifact analysis can include community, organization, and agency websites; blogs, newspapers, documents, and social media posts.

Good assessment work goes beyond the conventional. We have sought out persons of influence, both supporters and critics, and have relied on their networks to connect with people with relevant knowledge and experience. Interviews, for example, may start with influential or prominent community members. In any given situation, for example, local citizens provide information about community issues (past and present) and the spirit or morale of the area.

### *Apply an assessment framework*

Assessment should be intentionally structured; a good assessment is akin to a well-designed research project. To this end, natural resource and environmental conflict and decision situations can be evaluated via a number of different frameworks (Emborg, Walker, and Daniels, 2012). Examples include the "conflict map" (Wehr, 1979); the conflict dynamics continuum (Carpenter and Kennedy, 1988); "conflict management assessment;" CMA (Warner and Jones, 1998), and more recently, the "Collaborative Alignment: 4 Ps" method (Walker, Severson, and Daniels, 2019). Frameworks can be adapted for assessment purposes, such as the "five feature framework" for stakeholder engagement (Talley et al., 2016). A general assessment can be supplemented with a more focused evaluation, such as a stakeholder assessment (e.g., CANARI, 2011; Grimble et al., 1995), a social network analysis (e.g., Bodin

et al., 2020; Prell, 2009; Reyes-Garcia et al., 2019;), an appraisal of trust and distrust (see Emborg, Daniels, and Walker, 2020), or a power dynamics examination (e.g., Cashmore and Richardson, 2013). Highly regarded public policy dispute resolution firms (e.g., CDR Associates, the Center for Collaborative Policy, the Consensus Building Institute, the Keystone Center, the Meridian Institute, Resolve, and Triangle Associates) offer assessment services and have developed varied approaches for doing so. There is no single or simple "formula" to this assessment process. Rather, the analyst should assess the situation as comprehensively as possible given available resources to do so, such as time, access to people for interviews, review of documents, and so on.

These frameworks draw attention to many important factors but may not emphasize situation elements that we have found to be central to decisions about appropriate collaboration and tech–reg approaches. Consequently, we have applied two frameworks for assessing conflict and decision situations and their CP. We began using the first, "The Progress Triangle," in the mid-1990s. More recently, we have worked with the new "Unifying Negotiation Framework" (UNF). The Progress Triangle has been taught to thousands of students and professionals and applied to numerous projects (Daniels and Walker, 2001; Walker and Daniels, 2005). It has inspired the development of the "Collaborative Alignment: 4 Ps Framework" referred to earlier (Walker, Severson, and Daniels, 2019). The UNF has been employed in a number of doctoral dissertations, most of which have been directed by author Emborg (Daniels, Walker, and Emborg, 2012). In our experience, the strengths of the frameworks we have developed (Trust/Distrust, Unifying Negotiation Framework, the Progress Triangle) stem from the integration of theory and practice. Frameworks that support collaborative public engagement are not just about tools and techniques; they are grounded in relevant theory and research. The UNF, for example, draws of theory and research from a wide range of fields. The Progress Triangle and the UNF are discussed extensively in the 2015 essay.

### *Evaluate collaborative potential*

Some parties (e.g., a government agency; a local stakeholder group) may perceive a need to invest in public participation actions that are collaborative or be required to do so. But a high need or requirement for collaboration does not translate *appropriate* collaboration. Assessment should consider the foundation for collaboration and the potential for collaboration to be productive. As we noted in the 2015 chapter,

> If parties believe that a decision situation needs collaboration, assessing collaborative potential determines (1) if collaboration is feasible, and (2) what areas need to be addressed (e.g., trust) to increase collaborative potential and the likelihood of a best, collaboratively produced outcome.
>
> *(Walker, Daniels, and Emborg, 2015, p. 119)*

A government agency, a stakeholder organization, or a citizens' group that wants to convene an innovative public participation strategy will likely perceive some CP. Does the situation offer a significant opportunity for parties to work together to make meaningful progress on the issues of concern and conflict? Can collaboration lead to a better decision? Assessing CP relies on three steps: (1) "The party determines that the nature of the situation exhibits a high or compelling need for collaboration;" (2) "The party believes that there is a possibility for meaningful, respectful communication interaction between the disputants; and (3) "The

party surmises that a mutual gain or integrative outcome is possible" –that situation "offers the potential for both or all sides to achieve more of their objectives than would be likely in some other venue" (Walker, Daniels, and Emborg, 2015, p. 119).

## *Decision space and decision authority*

What in the conflict or decision situation is open to negotiation and influence? What is "on the table" for discussion and what is not? What are the relevant "sideboards" – factors that affect the situation but are beyond the parties' control? As we noted in the 2015 chapter, one of our first field projects involved a national recreation area managed by the US Forest Service.

> As we designed and facilitated community workshops about this recreation area, we asked Forest Service officials to clarify what was 'within' and 'outside' the decision space. Recreation area curfews were within the decision space, while threatened and endangered species were not.
>
> *(Walker, Daniels, and Emborg, 2015, p. 119; referring to Daniels and Walker, 1996)*

"Influence sharing, mutual learning, and participatory access and inclusiveness" are indicators of "decision space" we explained in the 2015 chapter, noting that "the greater the decision space, the greater the potential for meaningful public participation. Decision space is an important element that differentiates limited or traditional participation such as tech–reg approaches from more innovative and interactive participation, i.e., appropriate collaboration methods" (Walker, Daniels, and Emborg, 2015, p. 119).

The companion concept to decision space is decision authority; the party that is authorized to make a decision. In the USDA–Forest Service, "line officers" (e.g., forest supervisors and district rangers) sign "records of decision." Within legal limits, private landowners decide what to do with their property. Collaborative processes do not mean that the decision authority gets relocated from the agency/individual to the group, but that the decisions those actors make are informed and/or influenced by their involvement in the process.

When assessing a controversial and complex environmental situation, issues of decision space and decision authority should be thoughtfully addressed. "Assessment needs to reveal who has jurisdiction in the public policy decision situation; who has legal imperative to make or block a policy decision in that situation," we noted in 2015, and "jurisdiction is related to decision authority –the individual or organization that has the legal or organizational duty to manage or regulate the situation" (Walker, Daniels, and Emborg, 2015, p. 119). We have drawn on different frameworks for examining CP, decision space, and decision authority. The Progress Triangle, for example, highlights decision space and decision authority as part of the Procedural (Process) dimension. The Unifying Negotiation Framework identifies decision space and intervention points (e.g., for taking action), particularly as they relate to Agency.

## *Employ a systems view*

As we have developed our ideas about collaboration and designed a comprehensive method for doing collaborative work, we have recognized the need for concepts and techniques that address complexity, controversy, and uncertainty. We have drawn on the ADR literature – conflict management, negotiation, mediation, facilitation – ideas and tools relevant to controversy. The fields of adult and experiential learning respond well to uncertainty.

But what about complexity? We have attended public hearings at which people – either as citizens or representatives of a group – commented on a single issue (e.g., trails for off-highway vehicles, opposition to clear cuts, the need for more wilderness, and development of oil and gas). Rarely has a person's comments recognized multiple issues and the complexity of the situation. Consequently, from the beginning of our Collaborative Learning work – and we continue today – we have sought practical ways to deal with complexity. As we noted in the 2015 chapter, within the systems literature we have gained much from "soft systems" methodology with its emphasis on "human activity systems" (Checkland and Scholes, 1990; Wilson and Morren, 1990).

Incorporating systems thinking in our Collaborative Learning projects – both conceptually and practically – has distinguished Collaborative Learning from other methods and frameworks for multi-party collaboration in environmental conflict and decision situations. In our work, including recent projects, systems thinking activities are essential and foundational. "Working through controversy, communicating competently, and developing a shared view of the situation begin with thinking systemically and comprehensively" (Walker, Daniels, and Emborg, 2015, p. 122; citing Daniels and Walker, 2012).

Public participation can incorporate systems thinking and our field experience has demonstrated numerous times the capacity of people – regardless of formal education – to think systemically and understand complexity. "Systems thinking work offers a way for citizens to expand the discussion beyond a merely agency-centric formulation, such as a tech-reg approach," we noted in the 2015 chapter; "system thinking activities [bring] citizens'/stakeholders' broader interests into sharp focus and compelled the federal agency to expand its view, and arguably resulted in a more comprehensive and insightful analysis" (Daniels and Walker, 2012; Walker, Daniels, and Emborg, 2015, p. 123).

## *Incorporate civic science – both technical and traditional*

In a 2019 TED talk, environmental activist and geographer Hindou Oumarou Ibrahim speaks about the importance of indigenous knowledge and the climate crisis. She explains that, in her native Chad, "we use our indigenous people's traditional knowledge to get better resilience to what we need to survive." As she shares a story about her grandmother's knowledge of the weather, Ibrahim emphasizes that "if we put all the knowledge systems that we have – science, technology, traditional knowledge – we can give the best of us to protect our peoples, to protect our planet, to restore the ecosystem that we are losing" (Ibrahim, 2019).

In her talk, Ibrahim describes a "tool" she uses a lot:

> 3D participatory mapping: participatory, because it can bring women, men, youth, elders, all the intergenerational peoples. Then they use science-based knowledge, and the community comes together, and they build this map…this map helps [women and men] to discuss but to mitigate the conflict between the communities to access the resources, to share better these resources, to restore [the sacred forest, the landscape] and to manage it for the long term.
>
> *(Ibrahim, 2019)*

Consistent with Hindou Oumarou Ibrahim's wisdom and actions, our community-based collaboration fieldwork has incorporated a "ways of knowing" approach that gives voice to both technical knowledge (e.g., an agency biologist) and traditional knowledge (e.g., a

village elder, a local outfitter, a generational rancher). We refer to this combination (and where possible, integration) of the traditional and technical as "civic science." In respecting and including both technical knowledge and traditional knowledge, appropriate collaboration methods such as Collaborative Learning "value ideas from a variety of sources: physical/biological science, political/social science, the local community, and indigenous cultures" (Walker, Daniels, and Emborg, 2015 p. 123). A civic science orientation draws on traditional knowledge (including traditional ecological knowledge or TEK) just as it seeks scientific and technical knowledge; voices from nonscientific communities are heard alongside those of the scientists – one is not privileged at the expense of the other (Folke, 2004; Walker and Daniels, 2001, 2004).

## Communication and participation activities should be priorities

In a 2019 essay, two of the authors (Walker and Daniels) addressed "best practices" in environmental conflict management with comparisons to Collaborative Learning work (Walker and Daniels, 2019). Not surprisingly, "communication" was part of this discussion. Walker and Daniels noted that while the "best practices" of some organizations included communicating with stakeholders, outreach activities, interaction with media and political actors, and facilitation, communication was not featured as an important dimension of collaboration. Through our projects, we have realized that "investing in communication work and understanding the nature and importance of communication, are essential to productive and appropriate public participation. We have emphasized constructive communication activity in our field work; in assessment, training, and facilitated place-based events" (Walker, Daniels, and Emborg, 2015, p. 124).

### Constructing communication

In our most comprehensive discussion of collaboration and Collaborative Learning, we presented the view of communication as social construction. We wrote that

> A social construction view regards communication as fundamentally a process of creating shared meanings. We send messages as objectively measurable statements, but as recipients we generate the *meanings* those messages convey. The meanings we assign to communication draw upon our knowledge and experience.
>
> *(Daniels and Walker, 2001, p. 130)*

Communication as social construction is dynamic, audience centered, with messages, methods, and meanings.

Conventional public participation activities, such as public hearings and 60-day comment periods are relative passive and non–interactive. They represent a form of "command and control" communication in which a decision authority regulates the opportunities and forms of communication, likely used as part of a "tech-reg" approach to a problematic situation.

In the 2015 essay, we noted that, whether part of an appropriate collaboration or tech–reg approach, public participation requirements and procedures influence stakeholder expectations. People and the organizations they represent want their participation to contribute positively to the conflict management and decision-making process. We explained that "in assessment sessions we have conducted…citizens have talked about the importance of consistent and ongoing communication and transparency in the public participation, planning, and

decision-making. If citizens believe that public participation activities are pro forma, that their ideas do not really matter, or they see no evidence that their contributions were considered, they may either become adversaries or believe that 'collaboration' and 'participation' activities are neither" (Walker, Daniels, and Emborg, 2015, p. 125).

## *Multiple methods*

Our field experience, research, and reading of relevant literature about communication methods generate a dominant conclusion: there is no single "best" method for communicating to and with stakeholders. Participatory strategies should employ multiple methods, from newer communication technologies and platforms (e.g., social media, email, websites, and blogs) as well as conventional methods such as letter correspondence, phone calls, newspaper posting, and even flyers on the bulletin boards of post offices, libraries, and grocery stores. Communication events can exhibit a multi-faced approach, with innovative public meetings that foster collaboration, such as community cafes (similar to a world café), charrettes, scenario planning sessions, and dialogues. These can be combined with more conventional activities, such as open houses and hearings, accompanied by comment forms.

## New insights

As we remarked earlier, the 2015 chapter elaborated on the insights summarized above. Since that essay, our field work has continued, with additional insights to offer. We feature four here, even as we continue to learn about the importance of other factors, such as managing expectations and enacting unifying (collaborative and distributive) leadership (Walker and Daniels, 2012; Walker and Senecah, 2011).

## *NIMBY still exists and should not be dismissed*

The concept and reality of "Not in My Backyard" or NIMBY has endured for decades and emerges during public participation events in a planning process. Through our work in both the United States and Denmark, we have noticed that NIMBY discourse has been prevalent in some projects. NIMBY discourse persists, in part, because conventional public participation methods, such as public meetings with testimony for those parties who sign in and have standing, operate as "command and control" activities.

A number of scholars have addressed the idea of NIMBY as part of environmental decision-making, such as in wind energy development (Devine-Wright, 2005, 2011), hazardous waste management (Kikuchi and Gerardo, 2009), waste incineration (Xu and Lin, 2020), and urban planning (Sun et al., 2016). Irina Papazu of the Copenhagen Business School has studied "public hostility toward a projected nearshore windfarm of the (Samsø) island's preserved northern coast," noting that the islanders' opposition was "unexpected" (2017, p. 4). Samsø islanders had embraced renewable energy (RE) projects in the past, even accepted the island(s) becoming known as the RE Municipality (Papazu, 2017). Why, then, did Samsø residents opposed this project, known as Mejlflak? Papazu presents a number of reasons, including "the project developers' reluctance to involve local communities." She notes that Samsø islanders used a newspaper and public hearing to "voice their concerns and critiques." While noting the limitations of the NIMBY construct, Papazu concludes that project developers need to "practice responsiveness and [a] willingness to learn from citizen reactions" (2017, pp. 19–20).

## *Reframing participation as engagement*

For decades, "public participation" and "public involvement" have been the dominant terms when addressing procedural requirements for public review and comment on proposed environmental and natural resource management actions. The US Environmental Protection Agency (EPA) website states, for example, that "agencies are required to provide meaningful opportunities for public participation." The EPA website indicates that "key opportunities for citizens to get involved in the NEPA [National Environmental Policy Act] process include…when an agency begins the NEPA process [and] when a NEPA document is published for review and comment." The website points out that citizens can provide input regarding issues to be addressed in a NEPA planning process, through public meetings, conference calls, formal hearings, informal workshops, and written comments (U.S. Environmental Protection Agency, 2017).

Recent literature features "engagement." Sterling and colleagues, for example, note that "engaging local stakeholders is a central feature of many biodiversity conservation and natural resource management projects globally" (2017, p. 159). Lauer and colleagues associate public engagement with social justice (2018). They note that "face-to-face interactions, public forums online interactions, or workshops…engage stakeholder to various degrees along a continuum from informed to fully empowered" (p. 5). "Successful engagement methods," they explain, "help stakeholders feel that their perspectives were represented and that they had acceptable opportunities for participation" (p. 5). Writing about engagement related to fracking in Canada, Truong and colleagues focus on social capital. They have determined stakeholder perceptions and judgments of trust and self-efficacy influence public engagement about fracking (2020). Similarly, Krupa, Cunfer, and Clark employ the term "stakeholder engagement" when studying the efficacy of using public documents in decision-making processes. They observe that "stakeholder engagement is a strategic management perspective aimed at capturing knowledge, but it can also create inclusive decision-making, promote equity, and build social capital" (2020, pp. 612–613).

Of the method highlighted on the EPA website, only the "informal workshop" suggests the possibility of active engagement. Reframing participation as engagement implies the importance of active rather than passive participation. Engagement does not replace participation per se; but draws attention to the importance of involving the public in ways they find meaningful and constructive.

In our Collaborative Learning work and as part of recent collaborative efforts (e.g., National Collaboration Cadre projects), we have found value in thinking about engagement rather than simply participation. It is part of our "collaboration" discourse and our conversations with government agency staff and stakeholders. "Engagement" fosters an arena for innovation, adaptation, and customization when addressing public participation needs, requirements, and opportunities.

## *The importance of stories*

Our training and skill-building workshops on Collaborative Learning and the stakeholder engagement events we have designed and facilitated have something in common beyond the focus on collaboration – the significance of stories. In their evaluations of trainings and workshops alike, participants refer to stories. They report that the stories made concepts and practices meaningful; they could relate their own experiences to the stories told, not just by us as trainers and facilitators, but by the participants themselves.

Why do stories resonate? Bill Johnson, author of *A Story is a Promise and The Spirit of Storytelling* (2014), explains that a story is a world where every character, every action, and every story element has meaning and purpose. A story provides a way of presenting that is different than information, description, and illustration. It is easier to remember than other explanatory forms due to its structure. Stories are often personal and relatable; something with which people can identify, highlighting experiences similar to one's own. Stories provide order and meaning; helping to make sense out of chaos, complexity, and controversy. Rhetoric scholar Walter Fisher (1984) asserts as part of his "narrative paradigm" that people are essentially storytellers and are receptive to stories. Fisher contends that people tend to trust stories of individuals who show continuity of thought, motive, and action and that people respond to stories that relate positively to their identities (e.g., cultural and professional) and values.

Scholars recognize stories as part of natural resource and environmental management situations. Brugger and colleagues (2019) draw on historical and ethnographic material from the Tonto National Forest in Arizona to focus on storytelling as part of a conflict situation regarding livestock grazing on public lands. Lejano, Ingram, and Ingram (2013) present three case studies to illustrate the power of "narrative networks" as part of environmental situations. They focus on "the role of stories in our environmental behavior" and assert that narrative networks – networking and connecting through shared stories – "are fundamental to understanding environmental action" (2013, pp. 1–2). In his case study research of transboundary water conflict, Trejo features stories as an important aspect of the "political communication" in the negotiations. He asserts that "it is critical to question, discuss, and be aware of the stories that underpin the ways in which people approach a dispute, as they may contribute to shaping their attempts to understand the situations at stake" (2017, p. 14).

Although research on the topic of stories in natural resource and environmental management situations is limited, it reveals, as does our experience, that stories serve three important purposes. First, they foster understanding; through stories abstract concepts become real and practical. Second, they provide connections to the situation at hand. The stories generate participant cases and experiences; they are relatable to stakeholders by comparison and contrast. Third, stories can reveal interests, perceptions, and expectations. Stories that come from stakeholders provide insights into their interests and concerns; that which underlies their positions on the issues. Stories in the media (that stakeholders may repeat or reference) may reveal what they expect from the situation. Yet stories do not stand alone; they need to be tied to the issues at hand. They can illustrate opportunities and provide a source of optimism, but they can also serve as cautionary tales.

## Be responsive to the intangible factors

A number of years ago two of us (Daniels and Walker) worked with a National Forest in the western United States over a three-year period. We provided Forest staff with a training workshop on Collaborative Learning. This National Forest was beginning a multi-year process of forest management plan revision and wanted its public participation efforts to embody collaborative stakeholder engagement. Consequently, we designed and facilitated 25 community meetings during those three years. The meetings – which we called workshops – were iterative Collaborative Learning events.

In the years following our work with this National Forest, the third author (Emborg) traveled from Denmark to the United States to talk with people who participated in the

Collaborative Learning meetings, both citizens and Forest staff. Emborg conducted interviews with ranchers, environmentalists, senior Forest leadership, local business people; a variety of Forest personnel and stakeholders. Emborg reported to Daniels and Walker that one issue was particularly prominent in the conversations: the matter of trust.

These interviews prompted an in-depth examination of trust and distrust in environmental and natural resource management situations. We recognized that as important as trust was (and is) to all parties, how people constructed it – what it meant – varied considerably. It was a significant and yet intangible issue – one that people repeatedly said was essential to a credible collaborative effort. Our examination of trust and distrust, including a comprehensive literature review, the Emborg interviews, and reflections on our numerous field projects, resulted in the development of a framework for evaluating trust and distrust in natural resource and environmental management conflict and decision situations (Emborg, Daniels, and Walker, 2020). This framework can be used to assess the nature of trust and distrust in a given situation, either as a stand alone evaluation tool or as a compliment to a more general, broader assessment effort. It includes a matrix that draws attention to different types of trust at both macro and micro scales (p. 5).

Trust (and distrust) is but one of a number of intangible factors that warrant attention; factors that can influence how stakeholders can be engaged in a natural resource or environmental management situation. Power, face, and identity issues, like trust, are socially constructed by participants and are difficult to measure (Daniels and Walker, 2001; Hocker and Wilmot, 2018). Like trust, power is a factor that is critical to consider; Bacharach and Lawler (1981) that it is the most important element in a negotiation. They explain that while power has an objective component – such as resources and position – more important is subjective or perceived power, that is, how someone interprets or constructs meaning relative to the objective source. An objective feature of power (e.g., money) matters only if it is interpreted as such, thereby emerging as an intangible factor (Daniels and Walker, 2001).

## Looking forward – opportunities for participation as engagement

We anticipate continuing to work as "pracademics" in the field of public participation and stakeholder engagement, as researchers, writers, consultants, and teachers. In looking ahead, we have identified two areas that warrant attention from people addressing public participation related to environmental and natural resource management situations.

### *Climate change and locally-led adaptation*

When the Kyoto Protocol was negotiated at a United Nations climate change conference in 1997, the primary issue for negotiators was the reduction of greenhouse gas emissions through mitigation. "Widely hailed as a first step for slowing greenhouse warming," Victor explains, "the protocol requires each industrialized nation to cap its emissions at specific target levels" (2001, p. 3). Victor notes that, given the difficulties negotiating this agreement, other issues did not receive much attention. One such issue – adaptation to the impacts of climate change – did not appear prominently on the agenda.

Fast forward to the second significant climate change agreement; the Paris Agreement was negotiated and agreed to in Paris in December 2015. Articles 2 through 6 of the 29 Article Agreement focus primarily on mitigation – the reduction of greenhouse gas emissions.

Articles 7, 8, and 11 deal with issues not in the Kyoto Protocol: adaptation, loss and damage, and capacity building. The Nationally Determined Contributions (voluntary climate action plans) that countries develop and submit to the United Nations include both mitigation and adaption provisions.

As adaptation emerged (and the related issues of loss and damage and capacity building) in the years leading up to the Paris Agreement, and in climate negotiations and policy actions since the role of communities has become increasingly important. Community-based adaptation (CBA) is "a community-led process, based on communities' priorities, needs, knowledge, and capacities, which seeks to empower people to prepare for and cope with the impacts of climate change" (Berger and Ensor, 2014, p. 2, citing Reid et al., 2009). Like Collaborative Learning, CBA benefits from experiential learning. Suarez and colleagues explain that "CBA involves dynamic and dialectical elements that create tensions differing valid ways of understanding climate-related issues…these opposing forces…are not easy to grasp through linear educational approaches." The pose the question: "How does one devise a communication platform that can successfully convey the existence and relevance of system complexity?" (2014, p. 139). Suarez and colleagues call for a "multi-stakeholder approach" that includes experiential learning achieved through "innovative platforms to support community-based knowledge generation and sharing" (2014, p. 139).

CBA was defined as a field central to climate change policy and practice in 2005 when the first CBA Conference took place in Dhaka, Bangladesh. The CBA Conference has been an annual event since, with the authors (Walker and Daniels), presenting two sessions at CBA 12 on Malawi in 2018 (Walker and Daniels, 2018, Walker et al., 2018). CBA 12 "focused on getting local experience on climate action heard…the overarching aim was to achieve inclusive, meaningful community engagement in decision-making, in ways that enable opportunities for gender-transformative outcomes" (IIED).

Recently, CBA has come under criticism. Some of the criticism reflects issues that Cannon has raised: (1) that there is a myth that communities are homogenous or inherently cooperative, but given power relations, there is no guarantee that a grassroots effort will work; (2) that "community-based" may emphasize some forms of participation that are problematic and favor some parties over others; and (3) community projects may be vulnerable to "elite capture" and "concerns about what happens in relation to local power systems" (2014, p. 57).

Consequently, while "community-based" adaptation remains important conceptually, climate change activists, particularly within the non-government organization (NGO) and academic communities, are concerned that the term "community-based" has been co-opted, defined, and operationalized in ways that justify top-down approaches to decision-making. "Community-based" does not necessarily translate into community driven. Consequently, within the climate change policy arena, a new term resonates: "locally-led adaptation." This term has implications for appropriate collaboration and the nature of public engagement. As Westoby and colleagues contend, based on

> A growing body of evidence and new frontiers in research, rather than adaptation being 'community-based', it needs to be 'locally-led, not limited to 'communities', and should take place across different entry points and incorporate, as appropriate, elements of autonomous/Indigenous ownership.

*(2020, p. 1466)*

Climate change initiatives and NGOs are featuring locally-led adaptation (LLA). The Global Commission on Adaptation, an initiative founded in 2019, states on its website that "local communities are on the frontlines of climate change impacts, yet rarely do they and other local actors have a voice in the decisions that most affect them;" there needs to be a shift "from current top-down approaches to a new model where local actors have grater power and resources to build resilience to climate change" (Global Commission on Adaptation – GCA, 2021; see also CAS, 2021).

The Global Commission on Adaptation has developed eight principles for LLA. Those particularly relevant to public engagement include: (1) Devolving decision-making to the lowest appropriate level; (2) Addressing structural inequalities; (3) Investing in local capabilities; (4) Flexible programming and learning; and (5) Collaborative action and investment (Global Commission on Adaptation – GCA, 2021).

Collectively, the GCA principles embody active public engagement at the local level in ways consistent with appropriate collaboration methods like Collaborative Learning. Westoby and colleagues are concerned that "there remains a tendency for adaptation to be driven by, and over-reliant on, external 'experts' and resources, which can diminish local efficacy, agency, and overall adaptive capacity" (2021, p. 2, citing McNamara et al., 2020). They characterize LLA "as controlled by local people, grounded in local realities, ensures equity and inclusivity, and is facilitated by local networks and institutions" (2021, p. 2). Westoby and colleagues "call for a reframing around the strength of local people, their knowledge, networks and capabilities, and their deep understanding of their own complex and multidimensional realities so that they can determine their own adaptation futures" (2021, p. 6). The strengths of local people, they note, include (1) "Local people in situ are the best litmus test of local realities and their context on-the-ground," (2) "Local people have valuable tacit local knowledge and coping mechanisms that are critical for adaptation," and (3) "Local people's networks are important and should be nurtured to enhance adaptation outcomes" (2021, p. …See also Westoby et al., 2020). LLA public engagement and appropriate collaboration in ways not guaranteed by all "community-based" perspectives.

### *Participation and zooming ahead: participation virtually and remotely*

This chapter was drafted in the months that marked the one-year anniversary of the global Covid-19 pandemic. Our fervent hope is that by the time readers encounter these ideas the pandemic has faded into the rearview mirror of history. It certainly disrupted long standing taken-for-granted behaviors and assumptions, with normal government agency and non-government organization behaviors – public engagement among them – being impacted. While there is no guarantee how the future will unfold, large public meetings may be imprudent for some time to come.

Public engagement has long relied upon face-to-face public meetings (e.g., hearings, open houses) as a core activity. That tradition is so strong that public engagement without public meetings (PEWPM) is almost an oxymoron/null set. But the pandemic made such meetings problematic at best and impossible at worst. The silver lining of the pandemic in terms of public engagement practice is that it prompts meaningful innovation. One way to break the Gordian knot of equating public engagement with public meetings is to go back to first principles (such as the Aarhus Convention's rights of access, participation, and review) and devise ways to adhere to them in ways other than public meetings.

PEWPM (for the sake of economy) will place new burdens on the public engagement professionals in government agencies. They will need to be innovative and effective multi-channel communicators, proficient with a number of technologies but dependent upon none. Certainly, the first-level PEWPM strategy is to shift the interaction to an internet-based virtual platform such as Zoom, Adobe Connect, or others. But as any teacher who has moved to online instruction will confess, simply doing things on a virtual platform in a manner similar to an in-person class does not guarantee effectiveness. Moreover, unequal access to, and familiarity with, the internet means there is an inclusion/social justice disadvantage to merely moving public engagement onto the web, particularly in rural and low-wealth areas. Targeted, innovative, and persistent efforts to engage "under-webbed" populations and communities will be needed.

A successful transition to PEWPM will require public engagement professionals to be innovative risk takers, willing to try things they have never done before and learn from those experiments in practice. Perhaps they can encourage their colleagues to draft environmental disclosure documents that are shorter and more clearly explain the pivot points upon which the choices really depend. Perhaps they can become de facto YouTube producers and help technical specialists post videos that explain key issues in the Agency's proposed action. Perhaps they can engage in targeted outreach to populations that might not have been active in agency decision processes in the past. Regardless of the environmental or natural resource management situation, creating opportunities for active public engagement is challenging during a global pandemic. Beyond a pandemic that keeps people place-bound, public participation as engagement strategies, particularly on issues that transcend geography and time zones (like climate change) should consider including virtual, remote engagement options.

## Engagement during a pandemic

The National Collaboration Cadre Program of the USDA-Forest Service, in which two of us (Walker and Daniels) participate, has employed virtual communication platforms (e.g., Zoom, Microsoft Teams, and Adobe Connect) to conduct stakeholder engagement events. These platforms have been used for webinars, conference calls, and workshops. Government, business, community, and non-government organizations have held meetings in various forms, including hearings, online. As necessary as these online platforms are, Howard Lerner of the Environmental Law and Policy Center they do not replace face-to-face events, and if relied on too heavily, can constrain public participation. Online platforms do provide access, Lerner writes, but should not become the "new normal." Rather, he preposes a "both-and" approach; public meetings with decision-makers and "digital tools to connect and provide additional access for people to join and participate" (Lerner, 2020).

Using remote, virtual video communication technologies as part of a public participation strategy is not new but relying on them heavily is. Consequently, discussions of remote video platforms for public participation and engagement are limited but emerging. The Environmental Law Institute's Ocean Program (ELI), for example, provides guidelines for deciding if and how to incorporate remote opportunities into a participation plan. (1) Should meetings be postponed until face-to-face gatherings are feasible, or go remote? (2) If remote, what platform(s) should be used? (3) How can accessibility be improved? (4) How can organizations (e.g., agencies) get feedback, and learn and adapt? ELI notes that "while some of the new approaches being tested around the U.S. have seemed to support meaningful participation, others have been less effective and caused frustration among interested parties, leading

to petitions and lawsuits" (Oehler, 2020). To promote effective use of remote or virtual platforms and technologies, the International Association for Public Participation (IAP2) has provided a comprehensive list of resources (IAP2).

## A Case of virtual engagement – a forest and a multi-stakeholder collaborative

Like our readers, we continually explore ways in which public participation can foster active engagement, rather than passive participation with comments and questions in a "chat" area. Provided here is an example of a workshop the National Collaboration Cadre conducted during the Pandemic. The workshop involved staff from a National Forest in the Western United States and a community-based forest management collaborative organization.

This situation included two organizations – a National Forest (Forest) and a community-based multi-stakeholder collaborative (Collaborative). The Collaborative was created by local citizens and representatives of different interests, interest groups, and organizations (e.g., county government, forest products, recreation, wilderness, sustainability, and local business). The Forest and the Collaborative have worked together on projects (e.g., recreation) for a number of years, but due to changes in personnel (Forest) and membership (Collaborative), as well as changes in areas such as funding, Federal initiatives, local community concerns, the Forest and the Collaborative decided to take stock of their working relationship and address how it could be improved. The Cadre Team guided three days of workshops: one with the Forest, one with the Collaborative, followed by a joint workshop of the Forest and the Collaborative. The Joint Workshop featured the following objectives:

- Understand each other's expectations and assess areas of alignment and non-alignment.
- Determine areas in which collaboration is needed and appropriate and offer commitments to short and long-term collaborative action.
- Identify areas of assistance and support: Collaborative support for the Forest and Forest support for the Collaborative.
- Identify the protocols for working with one another in those areas.

The individual workshops with the Collaborative and with the Forest focused on collaboration both internally – within the specific organization – and externally, with the other organization. We have experienced throughout our years of field work that organizations that seek to work collaboratively with others need to support collaboration within their own organization. To address the Collaborative's internal issues and efforts, we employed a new approach that draws on aspects of Collaborative Learning. "Collaborative Alignment: The 4 Ps Framework" works with an organization by addressing four areas: Purpose, people, process, and product (Walker et al., 2019).

All three workshops were designed to emphasize active engagement, with discussion topics, tasks, and the use of "breakout rooms." The agenda for the Joint Workshop appears in Figure 10.2.

The three days of meetings were originally designed and scheduled as on-site, face-to-face events. The COVID-19 pandemic rendered that approach moot. The Cadre team had to investigate options and worked with Forest and Collaborative Leadership to develop the workshops. While the objectives of the individual and joint workshops did not change, the format (both in terms of content and time) did reflect the virtual platform. Zoom instructions and protocols were developed and participant guidelines were modified. The commitment to active engagement rather than passive participation did not change.

| | |
|---|---|
| 0900 | Schedule review, objectives, logistics, welcome remarks |
| 0910 | Introductions |
| 0945 | Decision authority, decision space, and FACA (presentation and discussion) |
| 1020 | Review expectations and identify themes (breakout group discussions) |
| 1120 | Morning wrap up |
| *1130* | *Break for lunch* |
| 1300 | Welcome back and morning reflection |
| 1315 | Headlines: Forest region headlines you hope to see (and not see) five years from now – and achieving the hopeful (positive) headlines (group go-round) |
| 1420 | Commitments – 3 to 6 months and 12 months (breakout group discussions) |
| 1450 | Sharing commitments (full group – reporting out and discussion) |
| 1520 | Wrap up and next steps |
| 1530 | End of the Zoom days and Zoom week – thank you – be well |

*Figure 10.2*   Forest–Collaborative Joint Workshop Schedule – on Zoom

## Conclusion

Thirty years ago, two of us (Daniels and Walker) began studying, developing, and facilitating public participation strategies, approaches, and practices in the field of natural resource and environmental policy decision-making. We did so by focusing on public participation pertaining to situations that were controversial and complex, hence, exhibiting significant conflict. We constructed a methodology – Collaborative Learning – that integrated systems thinking; conflict management, negotiation, and mediation; experiential learning; and participatory communication. The third member of our trio (Emborg) discovered Collaborative Learning almost 20 years ago and the three of us have shared field, teaching, and conference experiences since in the United States and Europe.

In doing so, we have continued to learn about the work and methods of others, such as the Five Feature Framework for stakeholder engagement (Talley et al., 2016), Conservation Conversations (Ruckelshaus Institute, 2021), social learning approaches (Muro and Jeffrey, 2008), the five-stage MePuPa process employed in Cuba (Batista et al., 2020), the "design-influence-objectives" conceptual framework applied to climate adaptation cases in the Netherlands (Uittenbrock et al., 2019), public participation GIS (geographic information system) or PPGIS (Brown and Weber, 2011), and various methods for stakeholder analysis (Reed et al., 2009).

Our efforts continue to evolve. Working with a National Collaboration Cadre colleague, we have developed and applied "Collaborative Alignment: The 4 Ps Framework" to communities wanting to inaugurate a collaborative group and to assess and improve existing collaborative groups (Walker, Severson, and Daniels, 2019). Some projects are relatively short term, such as a Cadre team's work in Wyoming to help start collaborative groups. Others are multi-year, such as Daniels' facilitation of the Monroe Mountain Working Group in central Utah (O'Brien, 2018).

We have highlighted ten insights in this essay; we certainly have gained more. For example, we have experienced the significance of managing (or not managing) expectations well, of developing an organizational culture that encourages, respects, and rewards collaboration;

of taking a long view (looking forward a generation), and drawing on shared values to convert intangible factors into constructive, concrete actions.

As we discussed in our 2015 essay, many countries require some form of public participation as part of their comprehensive natural resource and environmental management planning processes. Whether referred to as participation, involvement, or engagement, a stipulation or regulation about including the public does not ensure that interested parties will have influence on the planning process, decisions made, and policies implemented. Decision authorities and convenors of public processes can provide participation options that meet minimum requirements and "check a box," while maintaining control consistent with unilateral decisions. Meaningful public engagement begins with assessment to determine the need for and potential of collaboration, including the nature of decision space and what issues provide opportunities for influence and negotiation. It requires commitment of all parties to interact constructively and argues respectfully in order to identify and evaluate the best alternatives.

Over 20 years ago, Stephen McCool and Kathleen Guthrie reported on their research concerning public participation and "messy" natural resource management situations. They considered several dimensions of "successful" public participation: "writing a plan and implementing it; learning; interest representation; relationship building; creating responsibility; and gaining social and political acceptability" (2001, p. 309). Their article included quotes from a number of participants in Forest Service public meetings – both citizens and National Forest staff. About learning, one citizen said "in the meetings I went to, I got the impression that people weren't willing to learn…They went in with their prejudices and weren't willing to listen." In contrast, another citizen commented: "I learned more about the legal requirements – about what the Forest Service can and can't do relative to what the public wants" (2001, p. 318). Regarding responsibility, one citizen remarked that "[I feel] a little ownership. [My input] is reflected in some of their under burning and burning recommendations. So, it did tickle me to see those show up" (2001, p. 319). Some comments on relationships stood out. One Forest Service staff member stated: "The objective was to build credible relationships that we carry over into other land management projects. This was not just an exercise in gathering public input so it could sit in a file somewhere as required project documentation." A citizen echoed this sentiment: "You need processes for people to mix and get to know each other" (2001, p. 320). If citizens and agency personnel were asked similar questions today, responses would be likely similar.

From our years as "pracademics" in the fields of natural resource and environmental management, we can draw one overarching conclusion: Most stakeholders – agency personnel and citizens alike – want constructive opportunities to work together on significant management issues (substance), to interact respectfully and improve trust (relationship), and to understand what is possible within an appropriate process (procedure). Meaningful public participation is about engagement in controversial and complex situations in ways that make progress on matters of substance, procedures, and relationships – leading to good decisions. For public engagement to be pursued as appropriate collaboration, all parties need to provide support and commitment.

## For further reading

1  Daniels, S.E., and Walker, G.B. (2001). *Working through environmental conflict: The collaborative learning approach*. Westport, CT: Praeger.
This book offers a comprehensive discussion of environmental conflict and the Collaborative Learning approach for address conflict. It presents that theoretical foundation for Collaborative Learning and practical applications.

2 Daniels, S.E., and Walker, G.B. (2012). Lessons from the trenches: Twenty years of applying systems thinking to environmental conflict. *Systems Research and Behavioral Science*. 29, 104–115.

This article presents an overview of the Collaborative Learning approach, followed by a substantial discussion of systems thinking and environmental conflict. The article presents "lessons" learned from including systems thinking in collaborative work.

3 Emborg, J., Daniels, S.E., and Walker, G.B. (2020, April). A framework for exploring trust and distrust in natural resource management. *Frontiers in Communication*. https://doi.org/10.3389/fcomm.2020.00013

The matter of trust emerges in most environmental conflict situations. This essay reviews literature on trust and environmental and natural resource decision-making and introduces a framework for assessing trust. The utility of the framework is explained.

4 Johnson, B. (2014). *A story is a promise and the spirit of storytelling*, 5th ed. Portland, OR: Blue Haven Publishing.

This book, while not specific to environmental issues, describes the nature and value of storytelling. The author explains what constitutes a good story and shares storytelling insights that are relevant to storytelling and environmental management situations.

5 Lerner, H.A. (2020, 15 September). Defending public participation: Zoom alone should not become the new normal. *Blog, Environmental Law & Policy Center*. https://elpc.org/blog/defending-public-participation-zoom-alone-shouldnt-become-new-normal/

This blog post discusses the implications of relying on on-line platforms to conduct public participation events. The author sees value in on-line participation opportunities but cautions against relying on them too heavily.

6 Westoby, R., Clissold, R., McNamara, K.E., Ahmed, I., Resurreccion, B.P., Fermnando, N., and Huq, S. (2021). LLA: Drivers for appropriate grassroots initiatives. *Local Environment*. https://doi.org/10.1080/13549839.2021.1884669

Locally-led adaption has become an important paradigm for implementing adaption programs that confront climate change. This essay explains the concept of locally-led adaption and discusses its importance, specifically for the most vulnerable countries and communities.

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# 11

# ENVIRONMENTAL REPORTERS IN A TIME OF CHANGE

*David B. Sachsman and JoAnn Myer Valenti*

The period from 1990 until the early 21st century can be regarded as a golden age of environmental journalism in the US and in many parts of the world. However, the first decade of the 21st century also marked the financial decline of the newspaper industry in the US and in other nations and a weakening trend in American television, all of which were made much worse by the stock market crash and recession of 2008. By the end of the decade, many experienced environmental reporters had lost their jobs, and the future of environmental journalism around the world was in transition.

The numbers of environmental reporters working for American newspapers declined steadily throughout the period. As early as 2013, concerns about the shrinking ranks of environmental journalists worried those involved with climate change science, who feared the public would not get needed facts. A Reuters correspondent confided at that time that they were told climate and environment stories were not a top priority. Some speculated that editors were uninterested in science or complex topics because they have no background in these topics and are more interested in overheated debates about political issues. While newspaper support of environmental journalists was decreasing, newspapers in America and around the world continued to be important sources of environmental news. And, on the internet, Facebook, Google, and growing numbers of online blogs and sites were on the increase and had become easier sources for consumers to access environmental information.

Who are the environmental reporters? Where do they work and what difficulties do they face? How has the environmental beat developed in the past half-century and what is the future of the men and women who cover environmental news? This chapter begins by reporting the findings of a baseline study of environmental reporters in the US at the beginning of the 21st century and then turns to three of America's finest environmental reporters for their personal descriptions of the changes facing environmental reporters because of the decline of the American newspaper business in the Internet Age.

Environmental news coverage exploded in the US and in other nations (such as the Nordic countries, France, and Spain) in the late 1960s and would become the norm in the 1970s. Television coverage of such environmental accidents as the Santa Barbara oil spill, with oil-soaked birds dying in the arms of weeping rescue workers, and the Cuyahoga River in Ohio actually on fire caused the public and the press to focus on environmental issues. In Japan,

photographs of the tortured bodies of victims of "Minamata disease" in the 1960s (taken by Shisei Kuwabara) alerted the world to the dangers of environmental pollution. The 1968 exposure in the press that Minamata disease had been caused by the Chisso Corporation's dumping of methyl mercury in Minamata Bay from 1932 to 1968 would eventually lead to the establishment of the Japanese Environment Agency in 1971 (Konishi 2020). By the end of the 1960s, conflicting public relations forces—representing government and environmental groups as well as business interests—were vying for the attention of journalists, and some science reporters and others were adding the environment to their beat.

"Environmental journalism changed little by little throughout the 50s and 60s," said Peter Dykstra, the former head of the CNN environmental unit who served as publisher of the online daily news aggregators Environment Health News (www.ehn.org) and Daily Climate (www.dailyclimate.org). Science writing, with its focus on interpreting and explaining science, offered few policy or economic components. By 1970 and the first Earth Day, Rachel Carson's passionate writing about science had impacted the public's demand for more information and political response, Dykstra explained. Environmental journalists' reporting included the missing economics and politics. Dykstra pointed to the back half of the 1980s: a disaster in Bhopal, nuclear crisis in Chernobyl, medical waste on New Jersey beaches, an ozone hole, and serious cleanup needs at the Hanford nuclear site in the state of Washington. By 1990, the environment had earned its own beat.

A similar pattern developed in other parts of the globe. As in the US, the publication of Carson's *Silent Spring* in 1962 had an enormous influence on environmental reporting in Great Britain, while in France, environmental journalism was begun by activist reporters. The Bhopal and Chernobyl disasters shook the 1980s, making the environment a critical topic for journalists around the world, and the 1997 Kyoto Protocol established climate change as *the* environmental issue of the 21st century in nations as far afield as Japan and India.

"The Rio Earth Summit [in 1992] involved more than 100 national leaders and about 10,000 journalists from around the world," explained Bill Kovarik of Radford University.

> It produced a forward-looking treaty pledging nations to environmental protection in biodiversity, forestry, and countering climate change….Many journalists felt that it was a turning point, a rare moment of appreciation for environmental journalists around the world, who had been struggling for legitimacy and recognition within their own profession and in dealing with government organizations.
>
> *(Kovarik 2020: 63)*

The number of environmental reporters grew steadily along with the economic success of the newspaper and television industries. In 1990, the Society of Environmental Journalists (SEJ) was formed in response to the growing number of environmental journalists. By the beginning of the 21st century, 534 American daily newspapers (36.5%) and 86 television stations (10%) employed specialized environmental reporters (Sachsman, Simon, and Valenti 2010: 53–56). In addition, there were many more freelancers, magazine reporters, book authors, and internet writers covering the environmental beat.

In the 1980s, 1990s, and the beginning of the 21st century, environmental reporters were on the increase in many parts of the world, although newspapers in many countries were slow to establish environmental desks or beats. The number of mainstream UK journalism jobs declined significantly since the economic crisis of 2008. "One of the most notable things over the last 15 years has been the slow death of the [traditional] environmental

correspondent," said Leo Hickman, former environmental feature writer with the *Guardian* and now editor of Carbon Brief (Gibbons 2020: 189).

In France, where environmental journalists disagree as to whether the environment has become a basic category of news or is still a peripheral topic, "the press has undergone a loss of 71% of advertising revenue since 2000" (Sachsman and Valenti 2020: 8). And in Germany, where "there are hardly any outlets or desks dedicated to the environment," many print and online media are struggling to find a successful economic model for the future (Schrader 2020: 213). Even in Japan, where newspapers are the most trusted sources of news, and "environmental reporting…is one of the most important news fields" (Konishi 2020: 265), "the financial crisis of 2007–2008 and the Great East Japan Earthquake and Fukushima nuclear accident of 2011 led to a rapid decline in newspaper sales" (Konishi 2020: 275).

By 2012, newspapers in many countries were in severe economic distress, and many experienced environmental journalists were no longer working for newspapers. SEJ in 2004 boasted a membership of 968 active journalists, including 430 newspaper reporters. In 2012, SEJ active membership was 924, with the number of newspaper reporters down to 225, compared to 403 freelancers (Society of Environmental Journalists 2012).

## The golden age of environmental reporting in the 21st century

The best baseline information on environmental journalists was collected from 2000 to 2004 in a series of regional studies that finally amounted to a census of those environmental reporters then working for daily newspapers and television stations in the US. The resulting book, *Environment Reporters in the 21st Century*, analyzed the interviews that had been conducted with 652 of the 686 environmental journalists identified, including 577 of 603 newspaper writers (95.7%) and 75 of 83 television reporters (90.4%). Researchers David B. Sachsman, James Simon, and JoAnn Myer Valenti found that 78.7% of newspapers with circulations greater than 60,000 employed one or more environmental reporters, compared to slightly more than one out of three newspapers overall and only one out of every 10 television stations (Sachsman, Simon, and Valenti 2010: 43, 53–56). Bigger newspapers may really be better newspapers in terms of newspaper coverage of the environment (Bogart 2004: 40–53; Gladney 1990: 58–72; Logan and Sutter 2004: 100–112; Meyer and Kim 2003).

Sachsman, Simon, and Valenti identified environmental journalists as those who said they covered the environment on a regular basis as part of their reporting duties. They found that only 29.0% of these writers carried a title containing the word "environment." Nearly half were simply titled reporters, general assignment reporters, or staff writers, while the others were specialized editors, outdoor writers, specialized reporters, science writers, and health reporters. More than half spent less than a third of their time covering environmental issues, while only 26% spent more than two-thirds of their time on the environmental beat. Overall, reporters spent an average of 43% of their time on environmental stories (Sachsman, Simon, and Valenti 2010: 42, 57–59).

Sachsman, Simon, and Valenti compared environmental journalists with US journalists in general, using data collected by an Indiana University research team headed by David H. Weaver and published as *The American Journalist in the 21st Century: U.S. News People at the Dawn of a New Millennium* (Weaver et al. 2007). Overall, the environmental researchers concluded that environmental reporters working at daily newspapers and television stations shared many individual and work-related characteristics with each other and with US journalists in general. The environmental reporters were *journalists* first, perhaps due in part to their similar backgrounds and to the basic professional training received by most journalists.

While the most popular major among environmental journalists was journalism/communication, the environmental reporters differed slightly but significantly from US journalists since many of the environmental reporters had minored, majored, or received advanced degrees in scientific fields (Sachsman, Simon, and Valenti 2010: 70, 63).

Modern environmental journalism in the 1960s and early 1970s had been seen as an offshoot of the science beat, but by the time SEJ was created in 1990, the journalists who attended the annual convention offered a different specialized focus than science writers who attended the annual meeting of the American Association for the Advancement of Science. Their interests went beyond the particulars of science. Sachsman, Simon, and Valenti asked environmental reporters how often they used various story angles in addition to the "environment" in their coverage. Nine out of 10 said they used government, human interest, business, pollution, and nature in their stories, and 8 out of 10 also included science, politics, and health. Finally, 7 out of 10 included the concept of risk assessment in their coverage (Sachsman, Simon, and Valenti 2010: 95–96).

Scientists and industry leaders believe that the concept of a scientific degree of risk is central to environmental news reporting. For scientists, risk analysis, management, and education allow for the appropriate measurement and solutions of environmental problems, as well as for informing the public on how to protect themselves. For industry leaders, the concept of a scientific degree of risk is central to the idea that environmental issues are fundamentally health risk issues that should be addressed when there is a provable human health risk (Sachsman 1999: 88–95).

The basic news standards of journalism include human interest, proximity, timeliness, prominence, and consequence, which includes risk (MacDougall 1977: 56). In addition, a Rutgers University study found that television news about the environment also focused on visual impact and what the researchers called "geography," the cost and convenience of covering an environmental story (Greenberg, Sachsman, Sandman, and Salomone 1989: 267–276). By the beginning of the 21st century, environmental reporters generally understood and paid attention to the concept of risk, but because they framed environmental stories in terms of government actions, human interest, business, pollution, nature, science, politics, and health (as well as risk), they did not accept the industry argument that environmental issues became problems only when they posed a provable human health risk. The environmental beat had become as much about the politics behind the issues as about the underlying science.

## Environmental reporters and their sources

The public relations efforts of environmental news sources have always had a significant influence on news coverage. In the first half of the 20th century, environmental press releases often came from business interests, explaining their solutions to issues of public concern. In the 1960s, environmental anti-pollution activists joined the fray, and the federal government weighed in with a new recognition of a need to respond to environmental problems. By the beginning of the 1970s, one study found that public relations press releases accounted for some 20% of environmental coverage and that public relations sources contributed to no fewer than 25% and as many as 50% of environmental stories (Sachsman 1976: 54–60). By that time, conflicting public relations sources were engaged in a public relations war to capture the attention of the mass media and set the environmental agenda. Public relations sources have continued to be very influential. A 2004 study of health reporting showed the ongoing influence of public relations in specialized news reporting (Tanner 2004: 350–363).

In the 1970s, government officials dominated the environmental discussion and played a major role in setting the environmental agenda, as they do today. Federal officials make environmental announcements on a daily basis; state government agencies are important sources for environmental reporters; and almost every local government meeting has at least one environmental issue on its agenda. The environment is now such a basic government story that every government reporter must be prepared to deal with it (Brown 1986: 45–54; Gans 1979; Greenberg, Sandman, Sachsman, and Salomone 1989: 16–20, 40–44; Lacy and Coulson 2000: 13–25; Lovell 1993; Sachsman 1973: 54–60; Sigal 1973; Taylor, Lee, and David 2000: 175–192).

Traditionally, public relations influence meant press releases and press conferences aimed at newspaper and television reporters. Public relations sources also produced formal reports and sometimes even their own magazines. But in the Internet Age, a whole new dimension has been added. Today, every news source has its own website, often containing the equivalent of thousands of pages of information, easily accessible by search engines. Thus, while news sources have always tried to bypass the traditional gatekeeping function of the news media and take their messages directly to the public, in the era of the internet, they are able to do so, with Google currently among their most important gatekeepers.

## Objectivity vs. advocacy among environmental reporters

Some environmental reporters are ethically torn as journalists between their basic belief in objective reporting (and being fair to all sides) and the idea that everyone should support a healthy, clean environment, just as every health reporter should support good health. When Sachsman, Simon, and Valenti asked environmental journalists a number of questions about their attitudes, all but four of the reporters who answered these questions agreed that environmental journalists need to be as objective as reporters in general and need to be fair to sources such as environmental activist groups and corporations. Nevertheless, 36.7% said that environmental journalists sometimes should be advocates for the environment and 32.9% felt that environmental journalists should work with community leaders to help solve environmental problems (the definition of "civic journalism") (Sachsman, Simon, and Valenti 2010: 122–126).

Discounting the four reporters who disagreed with the concept of objectivity (0.6%), the environmental journalists could be characterized as belonging to one out of four groups. Nearly half (48.4%) were objectivity purists, who believed that environmental reporters should never be advocates or civic journalists, while 18.9% agreed that environmental reporters should be objective, should sometimes be advocates, and should work with community leaders to solve problems. The remaining journalists felt that reporters should sometimes be advocates, but never civic journalists (17.9%), or believed that they should be civic journalists, but never advocates (14.1%) (Sachsman, Simon, and Valenti 2010: 122–126).

The objectivity-advocacy debate continues among environmental journalists in many nations. In Spain, environment reporters are sometimes labeled as activists (Mercado-Sáez and Chavez 2020). In China, "some environmental journalists are considered 'offside,' a term which refers to an imbalance between objective reporting and environmental protection propaganda," explains Ji Li of Wuhan University.

> Some are considered 'offside' because they are also environmentalists who are active on the public welfare stage. Such double identities are likely to create an environmental reporting bias. 'Offside' has become an ethical dilemma faced by environmental reporters

concerned that this phenomenon erodes the objectivity of news and the credibility of environmental journalists. Wang Yongchen, who has been called both 'the Clark Kent of China' and a 'hero of the environment,' recognizes this issue. Mrs. Wang, who defines herself as a journalist, argues that China has special circumstances that sometimes necessitate such a duality.

*(Ji Li 2020: 288)*

## Three top environmental journalists reflect on a profession in transition

### *An interview with Peter Dykstra*

Today, fewer environmental journalists in the US are affiliated with large media. Even though the three major US networks (ABC, CBS, and NBC) finally have a full-time environment reporter, the dramatic overall change in media and journalists with the experience and knowledge to cover the beat can best be measured by SEJ's membership: the largest group of active members is now freelance writers. Some laid off or "retired" environmental reporters have moved to non-profit organizations and government agencies. "We initially called ourselves at Environment Health News the fossil collection," Peter Dykstra, now the weekend editor at EHN, said of the nonprofit's early staff and content contributors; among them at the time, Marla Cone, formerly of the *Los Angeles Times*; Rae Tyson, formerly environment editor at *USA TODAY*; Jane Kay, formerly from the *San Francisco Chronicle*; Doug Struck, formerly at the *Washington Post*; and Doug Fischer, ex–*Oakland Tribune* reporter. The change reflected in media over the last several decades is also reflected in political leadership, he said "I remember when the elder Bush [President George H.W. Bush] said he'd be 'the environmental president.'" Somewhere along the line, concern morphed into contempt for environment issues, he said, noting for example, that these days you won't find a two–hour special aired as in the past on ABC for Earth Day. "The post 9–11 singular focus [on security and war] and the country's economic collapse led to contempt for government, journalists, educators…and an organized push back [for perceived liberal bias] by Tea Party types," he said. "What's left is horrible for an informed democracy." While Dykstra believes we are now entering a new cusp of environmental awareness, he feels "media are in a sink hole."

The good news, he noted, is that while most media giants fell apart in their attention to environment coverage, the Associated Press set up a "shadow bureau" system with top science/environment reporters like Seth Borenstein, whose byline stories continue to appear in major new outlets. In spite of ongoing new disasters – climate change-related weather crises, the arctic meltdown, Japan's tsunami, and nuclear meltdown – real news analysis has been shut down. As he sees it, Fox, talk radio, and numerous conservative websites paint extremes and nothing but relentless attacks, building a message pleasing to those who favor resource extraction. It's all about "'gotcha' quotes and oops moments," he said, none of which bode well for serious environmental coverage. To pander to a seemingly dumbed–down, altered public sentiment and interest – and to maintain advertising dollars – major news outlets are closing costly headquarters, cutting home delivery, laying off staff, and "balancing" – in the worst form of journalistic practice – even editorial cartoons in an effort not to offend. At the same time, he notes, remaining network reporters, not typically thought of as environmental journalists, are covering environmental issues: Bill Weir (Chief Climate Correspondent) at CNN, Anne Thompson (Chief Environmental Affairs Correspondent), and "Today" show weatherman Al Roker (Chief Climate Correspondent) at NBC, with meteorologists at ABC and CBS covering climate and environment news.

"Personality driven trends" have replaced news, Dykstra lamented. "The conversion from information to entertainment is complete." Media have gone to a menu of reality shows – cheap to produce and a favorite of advertisers. The so-called Learning Channel (TLC) offers a slate of programming insulting to any intelligence, he added, as an example of how science and environment have dropped out as "non-competitive." None of this bodes well for an informed citizenry, he argues, unless you're linked in to selective online sites –.gov sites like USGS or a growing span of environment blogs established by ex-journalists – or Twitter alerts from informed friends. Unfortunately, the widened diversity of sources carries the risk of leading users only to what makes them feel comfortable, he warned. "We don't know in what direction information will go," Dykstra said. Have we been dumbed down? Are we willing to accept an "enfotainment" media devoid of environment news? "Inertia is a serious problem for a democracy," Dykstra concluded.

## An interview with Marla Cone

When she voluntarily left the *Los Angeles Times* in 2008 after watching an exodus of colleagues she most respected – some laid off, some taking offered buyouts – Marla Cone couldn't imagine leaving journalism. Turns out, she was only moving on in the changing world of reporting news. She had covered environment issues locally, nationally, and internationally for the *Times*, with lots of front-page stories during her 18 years there. But new management was less interested in environment stories even though the audience was still there, especially for information on how environmental problems impacted health, she said. Stories on the *Times* website got weaker; some excellent, hard-hitting stories were cut drastically. Resources to cover stories were greatly reduced, with the staff cut in half. The new management "tore apart the *Times*," she said. "I was really sad leaving newspapers," she said, but she knew she wasn't leaving journalism. Instead, Cone entered the world of nonprofit journalism in 2008. Since then, she has been a senior editor in charge of environmental coverage at several nonprofit organizations, including *Reveal* (from the Center for Investigative Reporting) and CalMatters, as well as a senior editor at *National Geographic*. She believes that much of the best environment reporting now is produced by foundation-funded newsrooms, pointing to several nonprofit sites such as ProPublica and *InsideClimate News*. Yet funding remains a constant challenge for nonprofit journalism due to the shifting priorities and financial concerns of foundations.

Some well-funded nonprofit news organizations have helped fill the void left by shrinking newspapers. "It's mattering less and less that real journalists are at newspapers," Cone said. What matters is that reporting is coming from "real" journalists, whatever media they work for. *InsideClimate News*, for example, produces excellent coverage of all facets of climate change. ProPublica launches important environmental investigations. CalMatters covers California's environmental policies, which often are groundbreaking. She said readers today would benefit if they choose to get their environmental news from a mix of local and national newspapers, online sites, podcasts, and magazines.

Cone, who has been a journalist for more than 40 years, said coverage of specialized beats like science and environment suffers when experienced reporters and editors are let go. "Environmental journalism requires experience, nuance, high journalistic standards," she said. Some media organizations still insist that environment and science stories can be handled by general assignment reporters and editors. That's a big mistake, she said. The stories often lack context and scientific understanding. Cone said one of the biggest problems in journalism today is the loss of experienced journalists at local newspapers. ProPublica and *InsideClimate*

*News* have both stepped in to help, teaming with local newsrooms that have little expertise in covering the environment and science. She said this helps them deliver news on complex issues to the communities that need it, particularly regarding the local effects of climate change, air pollution, and drinking water contamination.

SEJ has helped immensely by offering grants to staff and freelance reporters and facilitating mentoring. Cone said experienced environmental journalists need to mentor younger reporters, teaching them how to cover scientific uncertainty and how to incorporate data into their articles, stressing the importance of understanding environmental law and history. The new generation of environmental journalists also needs to master innovative, interactive graphics, and other web-oriented approaches to stories. "The environment is, and always will be, among the most important topics the world faces today," she said.

> We just have to work hard to convince editors, foundations, and investors of the importance of environmental journalism. The best way to do that is to produce rich, in-depth articles on everything from local air quality to global climate change and keep finding new ways to make sure they resonate with readers.

### An interview with Mark Schleifstein

Faced with *The Times-Picayune* management's decision to lay off some 200 employees and shift the focus from its print product to an expanded website in August 2012, Mark Schleifstein said "This is the future." The newspaper was to move from seven-day home delivery to only three days (Wednesday, Friday, and Sunday, the three best ad days), while the news staff would work on expanding its online presence in hopes of enticing advertisers already redirecting their dollars away from print to the online local product.

However, eight years later, Schleifstein was working for a new employer, the Baton Rouge-based *Advocate*, which had launched its own New Orleans edition in 2014, taking advantage of a community backlash against the reduced delivery schedule by promising a seven-day-a-week and locally owned product. In 2019, *The Times-Picayune* was shuttered by its owners, with all remaining staffers, including Schleifstein, laid off and its name sold to its competitor. On July 2, 2019, the day after *The Times-Picayune* went out of business, the new management introduced a new, unwieldy masthead for the *Advocate*'s New Orleans edition: *The Times-Picayune | The New Orleans Advocate*. The new newspaper hired 10 of the laid off journalists, including Schleifstein.

While at the old *Times-Picayune*, Schleifstein was awarded a grant by a major foundation to add two more environmental reporters to the newspaper. When the *Advocate* took over, these positions were transferred over to the new paper. In 2020, Schleifstein's salary was added to the grant, all funneled through SEJ to assure a firewall between the grantor and the decisions on what to cover.

"My beat will stay the same. I'm still the alleged environment reporter." In the event of a non-environmental emergency, he can be tapped to cover other issues, as happened at the beginning of the pandemic, and often occurs during hurricanes. "But most of the time, I and my team are covering the basic environmental issues affecting south Louisiana, coastal erosion and restoration, the effects of climate change, oil and gas, and the petrochemical industry." And he says, with some amount of enthusiasm, there will be others covering environment stories, for example, on the city hall team or government desk or when or wherever a science/environment/engineering issue arises.

Despite the bumpy path to the new newsroom, Schleifstein has been able to continue to spend at least two-thirds of his time covering the environment. But because of the world-wide COVID pandemic, his newsroom has been replaced by a home office in an unused bedroom, complete with widescreen monitor and broadband internet. He now has regular deadlines for the print product, while the web continues to demand breaking stories whenever they occur. The importance of the work remains the same. Publishing his work online and in print remains "the best way for me to get information [about the environment, science, and engineering] out to the public," he said. After nearly four decades covering coastal woes, hurricanes, the BP Deep Water Horizon oil spill, and more, the restructuring of news delivery systems doesn't faze him. Katrina and the BP disaster renewed a golden age in environment reporting for him when other environment reporters were being laid off, downsized, or bought out.

Schleifstein has talked to management about helping the audience navigate both print and web products. "Management needs to be educated on how to deal with problems for readers," he said. This becomes even more important as his company and others attempt to gain profitability by enticing readers to pay for internet newspapers using online paywalls. Part of these discussions also focuses on finding other funding opportunities to underwrite positions in other areas where coverage may seem sparse to readers.

Where the old *Times-Picayune* attempted to capture new online readers through focus groups or online meetings, the *Advocate* has developed a series of in-person events that play out as live online video productions. The paper is working with Facebook and Google to develop other new ways of reaching readers.

New Orleans remains a good test market for the rapid transformation of news media. All of the *Advocate*'s editions (New Orleans, Baton Rouge, and Lafayette) have partnered with local television stations and often report jointly on major breaking news and investigative stories.

Schleifstein's grant expired at the end of 2020. While he has been talking about the possibility of retirement, he is "already hearing from [the] editors that they're not necessarily going to let that happen." The real question is, what will be the future of environmental reporting in New Orleans when Schleifstein does eventually retire?

## Environmental reporters in a changing media world

The newspaper business has traditionally been a factory business, producing a throwaway paper products. Its overhead expenses have included enormous, expensive buildings, giant printing presses, fleets of trucks, and large numbers of production and circulation employees, in addition to journalists. The factory business model has been problematic in many parts of the world for some years, but despite declines in readership, the newspaper business generally had been kept afloat by a steady stream of advertising revenues. The stock market crash and recession of 2008 cut these revenues virtually in half (Edmonds, Guskin, Rosentiel, and Mitchell 2012; Sachsman and Sloat 2014).

Since 2008, there have been media job reductions almost everywhere, but the cutbacks in the newspaper business have been staggering. In the US, the Gannett Company alone has made thousands of buyouts and cuts, and newsrooms across the nation have many empty desks (Sonderman 2012). In 2012, the American Society of News Editors reported that newspapers employed 40,600 news professionals, a loss of 28% from the beginning of the 21st century. In the same year, the Pew Research Center's Project for Excellence in Journalism reported that these cutbacks were continuing to result in

much less coverage of government in suburbs or remote cities, pulling back on state government coverage, the decimation of specialty beats like science and religion, fewer feature stories and elimination of many weekday feature sections, a smaller business report, typically not a freestanding section anymore.

Pew noted that the Federal Communications Commission in 2011 had concluded, "In very real ways, the dramatic newspaper-industry cutbacks appear to have caused genuine harm to American citizens and local communities" (Edmonds, Guskin, Rosentiel, and Mitchell 2012).

Overall employment in the US newspaper industry dropped nearly 50% between 2008 and 2018 (Babington 2018). While newspaper employment fell to record lows, viewership for network news also fell; ABC, NBC, CBS, CNN, and MSNBC all saw serious drops in viewer numbers (Babington 2018). In 2019, the *Wall Street Journal* reported a divide between newspaper haves and have-nots and predicted a dim future for newspapers (Hagey, Alpert, and Serkez 2019). "It's hard to see a future where newspapers persist" according to Nicco Mele, the director of Harvard's Shorenstein Center on Media, Politics and Public Policy (Hagey, Alpert, and Serkez 2019: B1–B8). By 2019, more than 250 newspapers were owned by a single company due to the merger of Gannett and Gatehouse in an effort to fend off plunging subscription and revenue changes (Lombardo and Trachtenberg 2019). A study by the University of North Carolina found that there were at least 1,800 fewer newspapers in America in 2019 than in 2004 (Stites 2020). A Pew study reported that a quarter of the newspapers with an average Sunday circulation of 50,000 or more had experienced layoffs (LeDuc 2020). One article in Pew's *Trust Magazine* called it "The Hollowing Out of Newsrooms" (Babington 2018).

In Japan, "during the pre-1990 era of economic and population growth, when…newspapers rapidly increased their number of subscribers, it didn't matter that most of the newspapers had similar articles because all were enjoying sales growth," noted environmentalist Masako Konishi. "However, the financial crisis of 2007–2008 and the Great East Japan Earthquake and Fukushima nuclear accident of 2011 led to a rapid decline in newspaper sales" (Konishi 2020: 275).

The fate of environmental reporting is only a single aspect of the fate of journalism in general and of fundamental changes in the delivery of news and information. Whether or not the decline of media circulation and revenue has hit environmental reporting more than journalism in general is an open question. Some argue that specialized reporters, like environmental journalists, have been affected the most. "Full-time environment writers in South Africa's print and digital newsrooms have been decimated by retrenchments, juniorization, and attrition," says veteran environmental reporter (and now freelancer) Tony Carnie of South Africa (Carnie 2020: 333).

In Spain, "the global economic crisis that began in 2008 was having an impact on media companies, which were beginning to lose resources and advertisers," explained María-Teresa Mercado-Sáez and Manuel Chavez, academics in the field.

> As a consequence, newspaper supplements (that had been sponsored by companies and private foundations) disappeared, and, even worse, newsrooms reduced the number of staff and the number of specialized environmental reporters. At that time, the traditional media of newspapers, television, and radio began to realize that their own business model was in jeopardy due to shifts in advertising to the internet. Ten years later, the media have not recovered from this crisis.
>
> *(Mercado-Sáez and Chavez 2020: 236)*

Today,

> Only some of the major newspapers have journalists dedicated to environmental issues. Environmental journalists still have to fight to position environmental information in the media. Without dedicated sections devoted to the environment, the presence of an environmental perspective remains doubtful in a media that focuses on content such as politics and the economy. The situation in radio and television is worse, and only the public media offers specialized spaces.
>
> *(Mercado-Sáez and Chavez 2020: 243–244)*

The German liberal newspaper *Frankfurter Rundschau* went through "a deep crisis between 2006 and 2012 with several changes in ownership, filing for bankruptcy, and a major over-haul, which included switching the printing format," reported German science reporter Christopher Schrader.

> This paper had been the leading source of environmental reporting before its crisis and has after several years returned to that position, albeit on a reduced level. Before the crisis, about 4,500 articles a year mentioned the environment; that dipped to between 1,500 and 2,000 during the crisis and went back up to 3,000+ afterwards.
>
> *(Schrader 2020: 216)*

Even in India, which has seen a 60% rise in newspaper circulation between 2006 and 2016, the mainstream media's environmental interest is on the decline (Mishra 2020).

As long as newspapers continue to employ environmental reporters, and as long as these reporters continue producing in-depth stories, the newspaper business will continue to be an important source of environmental news. Television has never employed many environmental reporters, but environmental journalists are employed by many specialized magazines, and the numbers of environmental freelancers are growing steadily.

Finally, there is the internet, where people often search for information, rather than looking for journalistic coverage of news, and where every news source and every niche publisher has its own web page. While the internet has cut into newspaper, magazine, and television audiences in the US and other parts of the globe, it has expanded the audience for information everywhere.

In the UK, "a thriving online environmental media has emerged with the rise of the Internet," writes freelance journalist Robin Whitlock.

> In the vanguard of this wave of Internet environmental reporting are websites such as Business Green, edited by James Murray, and the Energy & Climate Intelligence Unit (ECIU), directed by former BBC Science and Environment correspondent Richard Black. A plethora of other websites have now emerged covering the whole range of environmental topics and providing stiff competition to the mainstream print media.
>
> *(Whitlock 2020: 181–182)*

And some of the best environmental reporting in the world can be found on the internet, witness the website of Fiona Macleod's Oxpeckers Center for Investigative Environmental Journalism. Macleod brings a truly high-tech perspective to investigative journalism, "combining the more traditional investigative reporting techniques with data analysis, geo-mapping, and digital tools" (Sachsman and Valenti 2020: 12; Macleod 2020: 346).

Also, on April 15, 2013, the Pulitzer Prize for US national reporting was awarded for a series of reports on the regulation of oil pipelines. This was not the first Pulitzer to be awarded for a work of environmental journalism, but it may have been an indicator of the future because the winner was a tiny internet startup, *InsideClimate News*, a five-year-old nonprofit with only seven employees (Bercovici 2013). As newspapers in the US cut their budgets and close their environmental bureaus, more and more American environmental reporters are finding their way to the internet, a bright hope for the future of environmental journalism.

In the long run, more and more environmental writing will find its way to the internet, and if readers choose news and if an innovative economic model brings back advertising revenue, environmental journalism may witness another golden age.

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# 12

# NEWS ORGANISATION(S) AND THE PRODUCTION OF ENVIRONMENTAL NEWS

*Alison Anderson*

The study of news production processes provides crucial insight into how environmental news is crafted and can illuminate often hidden dimensions of power and influence. The first wave of news ethnographies in the 1970s has been replaced by a second wave that seeks to grapple with the new digital media landscape and a far more complex relationship between journalists and their sources. As new and diverse channels of communication have emerged, the power dynamics have shifted towards sources having a greater ability to bypass traditional gatekeepers (Fisher, 2018). These developments demand a major rethinking of older models of news production and journalist/sources relations.

This chapter begins by tracing the early origins of news production scholarship focusing on environmental news. It discusses Stuart Hall's primary definers model that provided the dominant framework in the 1970s and examines how empirical studies in the 1990s led to the development of a more nuanced version of this theory. A focus on how marginal sources attract coverage led to more attention being placed on competition over news frames and conflict among news sources seeking to influence agendas. The 2000s saw an increase in scholarship on the relationship between public relations practitioners and journalists with mounting concerns about their rising influence and cut and paste 'churnalism' that raises important questions regarding independence and credibility.

More recently, accumulating evidence has highlighted how industry sources are increasingly engaging in strategic communication via think tanks, etc. to protect their political and economic interests (Mann, 2021). In addition, the growing reach of social media has aided the rapid spread of fake or generally unverified sources of news. This raises important new questions for environmental communication scholars in the age of fake news and misinformation. At the same time, positive developments include the rise of digital-born new players and niche environmental sites that tend to give a greater voice to non-elite sources and themes that have tended to be under-represented in traditional media coverage. The chapter concludes by discussing some of the key internal and external constraints that shape news media representations of environmental issues. It reflects on new conceptual and methodological issues raised by the growth of digital media and the shifting, and increasingly blurred, relationship between journalists and their sources.

# Introduction to news production

News production studies contribute a vital lens to our understanding of environmental communication as they help to reveal the complexities that underlie news work.

Participant observation and in-depth interviews can provide fascinating insights into routine processes and constraints. The classic news ethnographies of the 1970s and 1980s laid the important ground for the development of news production studies in the environmental arena (see for example, Gans, 1979; Gitlin, 1980; Schlesinger, 1987; Tuchman, 1978). The term 'ethnography' is often loosely applied to refer to almost any form of qualitative research, but in its strict sense entails observation and immersion in the field to produce what Geertz (1973) called 'thick description.' These intensive studies, sometimes undertaken over a period of years, examined the professional ideologies of journalists, news values and dependence on news sources, newsroom conventions, and their everyday routines. While providing rich insights into 'behind-the-scenes' processes involved in news-making they tended to over-theorise structural factors to the extent that news was often seen as simply the outcome of a set of routine professional, organisational, and bureaucratic processes (Cottle, 2009). Moreover, they presented an essentially static, snapshot account of the organisational factors that shape the news, given that they tended to be ahistorical and limited in their ability to capture shifts over time (see Anderson, 1997; Schudson, 2000). As Cottle observes, these 'first wave' ethnographies of news production have become outdated by economic, technological, regulatory, and cultural change. The sheer range of different media platforms and formats means that it is time to question the received wisdom of earlier studies, with their tendency to generalise about the organisational nature of news production. Today's global 24/7 news culture is now much more complex and multi-layered with multiple platforms (see Chadwick, 2017). It is characterised by round-the-clock deadlines, increased competition, and 'multi-skilled' journalists who are forced to work more flexibly than ever before by the increased casualisation of the workforce, short-term contracts, and digital convergence (see Cottle, 2003; Cox, 2013; Mitchelstein and Boczkowski, 2009). Environmental journalism in the US and some European countries has been especially affected over recent years, as budgets for science and investigative reporting have been substantially cut and workloads significantly increased. As Boykoff and Yulsman note:

> Focused on efficiency, media organizations have forced journalists to cover an increasing range of beats under tighter deadlines. Moreover, content producers in publishing organizations that have survived newsroom cuts and shortfalls have faced increased multiplatform demands (video, audio, and text, along with blogs, Twitter, Facebook, Tumblr, Reddit, 4chan, and YouTube). This has posed significant challenges even to the most skilled and experienced reporters, including the likes of environmental journalist Andrew Revkin, whose *Dot Earth* blog at *The New York Times* is one of the best known outlets for information and commentary on global environmental issues, including climate change.

> *(2013: 362)*

PEW State of the Media Report (2013) concluded that: 'This adds up to a news industry that is more undermanned and unprepared to uncover stories, dig deep into emerging ones or to question information put into its hands.' This increases the likelihood of errors, as may be seen in recent examples involving Fox News in its reporting of climate change (Cox, 2013).

A further consequence of the intensely competitive news ecology is the tendency for many outlets to place increasing emphasis upon personalisation and drama through simplifying and exaggerating conflict between claims-makers (Anderson et al., 2005; Weingart et al., 2000). The global COVID-19 pandemic has taken an additional toll on an already declining newspaper industry (Watson, 2020)

The picture is varied however and in some cases improving. For example, in the UK, in 2017 the *Guardian* announced that it was increasing its team of journalists covering the environment (Guardian Press Release, 2017). Also in 2021, the *Financial Times* created a new Climate Capital section in response to a readership survey suggesting growing interest in the issues (see Granger, 2021). In 2019, the BBC appointed a chief environment correspondent. In addition, in the same year Sky News appointed its first dedicated climate change correspondent (see Schäfer and Painter, 2021).

Nevertheless, recent shifts in the media landscape are clearly affecting the ability of many reporters across the world to cover complex environmental issues. It is often lamented that journalism has been replaced by churnalism; that reporters have become mere passive conduits for press releases and copy churned out by news agencies and public relations companies (Davies, 2008 cited in Boykoff and Yulsman, 2013; 363; Lewis et al., 2008; Macnamara, 2014, 2016), though it is important to note that this is by no means a new phenomenon. In the mid-1970s, Sachsman, for example, found that more than half of environmental news reports in the San Francisco Bay area originated or drew directly from press releases from sources or PR copy − and in many cases, they were virtually word for word the same (see Sachsman, 1976). However with the growth of digital media, the organisational constraints referred to above, and the increasingly desk-bound nature of journalism, this tendency appears to have been exacerbated (see Lewis et al., 2008; Macnamara, 2016, 2014; Sachsman et al., 2010). As the PEW State of the Media 2013 Report observed:

> Efforts by political and corporate entities to get their messages into news coverage are nothing new. What is different now—adding up the data and industry developments— is that news organizations are less equipped to question what is coming to them or to uncover the stories themselves, and interest groups are better equipped and have more technological tools than ever.

These economic and organisational factors combined mean that daily working routines are more pressured and there is little opportunity to network and verify information face-to-face, leading journalists to be more reliant upon pre-packaged material from news sources. As such, the job of the journalist becomes more about sifting through the multitude of information they receive each day (via international news agencies, press releases, emails, phone calls, video news releases, social media, electronic bulletin boards, etc.) and deciding what merits a news story as opposed to actively searching for news.

## The power of elite sources to set the news agenda

The rise in digital media and mobile phone communications has changed not only how people in the developed world access and interact with information, but who has access and who produces content. As Cottle (2010) remarks: 'Whose voices and viewpoints structure and inform news discourse goes to the heart of democratic views of, and radical concerns about, the news media' (2010: 427). In the late 1970s, Stuart Hall and colleagues (Hall et al., 1978) published a classic study, *Policing the Crisis*, which examined the crisis over mugging in

the UK and argued that official sources or 'primary definers' (such as government ministers and corporate officials) gain advantaged access to the media. This was seen as the outcome of the professional ideologies governing journalism and shared news values that granted greater legitimacy and credibility to ruling elites, reflecting their institutional status in society. The media were seen as 'secondary definers' through their role in reproducing the views of the powerful. For Hall et al:

> These two aspects of news production – the practical pressures of constantly working around the clock and the professional demands of impartiality and objectivity – combine to produce a systematically structured over-accessing to the media of those in powerful and privileged institutional positions
>
> *(1978: 58)*

In this way, official sources have long been observed to predominantly have the upper hand; they frequently set the agenda for all subsequent framing of the issue, leaving less powerful sources in the position of having to respond rather than introduce their own frame (see Carlson, 2009). This reflects the wider inequalities of power with society, as Carlson puts it: 'News reaffirms the unequal distribution of knowledge within society by promoting some sources as authoritative while ignoring other voices' (2009: 536). The contest to gain favourable media coverage is not a level playing field since official sources tend to have greater financial resources and stocks of cultural capital (Anderson, 1997). Indeed, numerous studies have shown how news organisations rely most heavily upon government and corporate sources; a finding upheld in the general field of the sociology of journalism (e.g. Ericson et al., 1989; Sigal, 1973), as well as studies focusing upon the environment more specifically (e.g. Einsiedel, 1988; Greenberg et al., 1989; Trumbo, 1996). However, while still influential, the 'primary definers' model has been considerably qualified over time. In an influential piece in the 1990s, Schlesinger argued that the model, while offering a number of useful insights, was overly static and media-centric (see Schlesinger, 1990). It underestimated the extent of competition that occurs between news sources and ignored the complexities of source-media relations (such as conflict and division among powerful news sources themselves) and how media access changes over time reflecting broader transformations within society. Moreover, in focusing upon the processes through which official sources gain news access it directed attention away from looking at the question of how marginal sources attract coverage. In subsequent years, a range of empirical studies added weight to such observations, including studies focusing on news production and environmental issues (Anderson, 1991, 1993, 1997; Hansen, 1993).

As Cottle observes, news sourcing has shown to be a much more complex process than previously thought whereby: 'complexity and contingency are found where once social dominance alone was assumed sufficient to guarantee successful news entry' (2000: 437). It should be noted that elite access is not automatically guaranteed. News entry for both official and non-dominant sources is dependent on numerous contingencies (internal and external to the media). Research shows that marginal groups can sometimes gain elevated news entry (e.g. Anderson, 1997; Hansen, 2000; Manning, 2001). Non-dominant sources may lack the status, finance and PR personnel advantages enjoyed by official sources, but they are often able to respond to media demands much more quickly because they are not held back by cumbersome bureaucratic procedures and political restrictions (Anderson, 1997). Or, in the face of silence among 'official sources.' journalists may more actively seek out the views of alternative sources (Anderson, 1997).

As we shall see, the traditional hierarchy of credibility that tends to govern mainstream media does not automatically apply to social media; journalists are more likely to access the voices of ordinary citizens and celebrities rather than institutional voices via these outlets (see Anderson, 2017). Recent years have seen the emergence of online-born news media such as Buzzfeed, Vox, and Vice who began on digital platforms. In addition, there are now a growing number of specialist sites focusing on climate journalism including InsideClimateNews and Carbon Brief. These tend to rely on different patterns of sourcing, compared to traditional news media, and give a greater voice to non-official sources and themes traditionally under-represented in legacy media (Painter, 2016; Schäfer and Painter, 2021). However, not all digital-born outlets can neatly be lumped together. In its coverage of COP21 Huffington Post, for example, devoted a similar amount of attention to themes identified in legacy media, whilst Vice gave considerable space to civil society protests (Painter et al., 2018). Nevertheless, while elite sources are still important, there has been a greater diversification of voices and strategic PR communication, particularly in the field of climate change. As Hansen points out:

> The contraction in environmental journalism in traditional news media has been matched by an expansion in sources' use of strategic communication, resulting in an overall significant shift of power from journalists to sources in terms of ability to influence the agenda and nature of public debate about the environment. Sources have become increasingly adept at: exploiting traditional news values, norms, and practices; framing public environmental communication in culturally resonant ways; and taking advantage of the greatly enhanced affordances – including speed, visual communication, global interconnectedness, and circumvention of the traditional gate-keeping roles of news media organizations – of the digital and online communications media
>
> *(2019: 47)*

As traditional news has declined, then, there have been a variety of new players, a cacophony of voices, all vying to make themselves heard from 'A' list bloggers, to radio chat show hosts, to Twitter and YouTube users (Anderson, 2017; PEW Research Centre, 2010). Celebrities are increasingly being used by NGOs campaigning about environmental issues, such as climate change, as a means to catapult their actions into the headlines (see Anderson, 2011; Brockington, 2013). While citizens themselves have many more opportunities to contribute to news content, in the vast majority of instances this involves user-generated comment rather than news reporting. There has been a significant growth in the popularity of alternative, not-for-profit media outlets, including web-based magazines such as Grist and Climate Central (Spencer, 2010). Environmental NGOs make extensive use of online communication and transnational activist networks have proliferated in recent years (Hutchins and Lester, 2011; Schafer, 2012). At the same time, however, climate change sceptics have shown themselves to be particularly skilled at taking advantage of the opportunities afforded by new media platforms (Cox, 2013). There is no clear-cut distinction between 'old' and 'new' media, the two often being intermeshed together, just as the difference between 'mainstream' and 'alternative media' is increasingly blurred (Chadwick, 2017; Cottle, 2013).

Also, it is important to recognise that the extent to which journalist gatekeepers can be circumvented differs across the globe to some extent according to domestic politics, media systems, and cultural variations (see Schäfer and Painter, 2021). Taken together, the above shifts suggest, as Hansen observes: '…a need to reassess some of the classic questions in environmental journalism about the construction of credibility and expertise; the use of

science-focused and evidence-based argumentation; trust, authority, and uncertainty; and rhetorical style in public debate' (2019: 47).

More and more citizens are accessing news online through smartphones or laptops via dominant search engines such as Google, news aggregator sites such as Apple News, and social media platforms such as Facebook (Newman, 2020). Journalists now act more like curators than gatekeepers online. Audiences can now personalise their news consumption by controlling the stories and topics they get to view. Other news audiences also control what other users get to see via their online recommendations and clicks, shown in aggregated audience information (Tandoc, 2019: 180) Alongside this, social media have aided the rapid circulation of 'fake' news with such stories tending to be much more likely to be shared (see Tandoc et al., 2017). For example, a large number of photographs of Hurricane Sandy that were shared on social media in 2012 turned out to be fake (Fisher, 2018). Similarly, misleading information about the Australian bushfires in 2020 went viral on social media (Graham and Keller, 2020).

A further layer of complexity is that gaining access to the media and achieving coverage is only half the battle. How news sources' claims are framed, and whether they are portrayed as credible and legitimate is critically important. As Ryan (1991: 53) argues, 'the real battle is over whose interpretation, whose framing of reality, gets the floor.' Frames are culturally specific and offer a particular window on the world but they tend to be taken for granted and accepted as self-evident rather than actively scrutinised. Framing involves selecting certain truth claims over others and, in the process, denying or silencing rival versions of reality. Frames are shaped by claims-makers including politicians, scientists, and NGOs; they do not occur in a political vacuum (Olausson, 2009). A key aspect of framing, then, is selectivity which '…arises through the efforts of claims-makers to effect a particular definition of an issue or problem by establishing a frame that is likely to resonate with prevailing values or ways of understanding' (Allan et al., 2010: 30).

Robert Entman aptly sums it up in this way:

Framing essentially involves selection and salience. To frame is to *select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation* for the item described. Frames, then, *define* problems – determine what a causal agent is doing and costs and benefits, usually measured in terms of cultural values; *diagnose* causes – identify the forces creating the problem; *make moral judgments* – evaluate causal agents and their effects; and *suggest remedies* – offer and justify treatments for the problem and predict their likely effects (1993: 55; emphasis in original).

Framing therefore involves contestation between various claims-makers who seek to impose their preferred definitions of 'common sense' reality through the use of particular tactical manoeuvres (including staged news releases) and rhetorical devices including imagery, language, and metaphors (Allan et al., 2010). Through processes of framing some players are cast in a more credible light than others. It should also be noted that control over the media is as much about the power to suppress or silence issues (Anderson, 2009). Examining the degree of space devoted to environmental issues by different news outlets, and the amount of coverage given to different news sources, while useful, offers an inevitably partial account.

While the behind-the-scenes struggles among news sources competing for media attention have often been overlooked, we now know much more about environmental journalism and source strategies through interviews with journalists and sources, examination of press releases and policy documents, or through observational methods (see Anderson, 1997; Hansen, 1993; Hutchins and Lester, 2011; Lester and Hutchins, 2009). Most previous research has

focused on analysing the strategies of environmental pressure groups rather than industry, politicians, or scientists (see Anderson, 2009: Hansen, 2011). However, there is an emerging body of literature that examines how business and political parties are seeking to actively shape environmental news (e.g. Beder, 2002; Davis, 2007; Greenberg et al., 2011; Mann, 2021; Schlichting, 2013).

In an influential article published in 2000, Simon Cottle called for a 'second wave' of news ethnographies, questioning the validity of earlier assumptions that the organisational nature of news production automatically results in ideological closure. Such calls are beginning to be addressed, but there remains much work to be done. Most research examining online media has focused on content or reception rather than production, perhaps reflecting the practical difficulties in gaining access and the time and space to undertake such intensive fieldwork (Paterson and Domingo, 2008). Some scholars have begun to address the gap by studying news production in online outlets (e.g. Deuze, 2008; Domingo and Paterson, 2011; Manninen, 2017; Weiss and Domingo, 2010) but there are few studies that specifically focus on environmental news. In the next section, we turn to focus on key internal and external constraints that further shape media construction of environmental issues.

## News values and issue attention cycles

Over the past 40 years, environmental communication research has demonstrated how a myriad of factors shape news media representation of environmental issues in addition to the role and power of news sources. Far from mirroring reality the coverage of environmental affairs, as with news in general, is highly selective and reflects economic, political, and cultural factors. News about the environment is the end product of a complex process of construction. Deciding which environmental issues are newsworthy and merit coverage is governed by journalists' and editors' taken-for-granted ideas about what constitutes 'news' and judgements about the relative appeal of competing news items. Shifting issue attention cycles over time may be explained by a combination of numerous different factors both internal and external to the workings of the media (see Anderson, 1997; Hansen, 2010; Lester, 2010). Here, I single out some of the most important criteria (note this list is not exhaustive) that have been shown to influence which environmental issues get covered and how they fare over time.

### *Internal factors*

First, environmental news is highly event oriented and this often determines whether an issue attracts coverage. For example, dramatic events such as major oil spills tend to attract intense media coverage, particularly when they involve elite nations (Anderson and Marhadour, 2007). The more rare or sudden the event, the more likely it is to gain novelty value and grab headline attention. News quickly becomes stale and the unexpected and new are valued.

Second, environmental issues that lend themselves to ready visualisation are generally more likely to be picked up, and this is especially so for digital formats. In many cases, the availability and quality of pictures become a central factor affecting broadcasters' judgements about the newsworthiness of a given environmental issue (Anderson, 1997; Smith, 2005).

Third, environmental issues tend to involve long, drawn-out processes and there is often a long period of scientific uncertainty, which sits uneasily with 24/7 news cycles (Schoenfeld,

1979). Unless claims-makers are able to draw attention skilfully to such issues by packaging them in more attention-grabbing ways, they are likely to remain relatively invisible.

Fourth, the tendency for media to focus on conflict and controversy and to exaggerate points of divergence can influence story selection (see Anderson et al., 2005; Lester and Hutchins, 2013). Stories that fit into a classic 'protest frame' may garner more attention since they include ingredients of drama, spectacle, and disorder (see Lester, 2010).

Fifth, research suggests that editorial pressures can bear strongly upon journalists' coverage of environmental issues. For example, O'Neill, an Australian broadcaster seconded to the Reuters Institute, interviewed 14 mainly UK-based journalists and editors (broadcast and print) in May and June 2010 and found many of the reporters experienced considerable hostility from their editors in the wake of Climategate (see O'Neill, 2010). Similarly, Smith concluded that:

> The negotiation between correspondents and editors is a critical point in the mediation of climate change knowledge. It often centres on the degree to which the proposed stories fit with dominant news frames. These negotiations take place in the context of immense time pressures and acute surveillance of the performance of individual editors…The result is very likely to be stories that satisfy editorial standards much more satisfactorily than they communicate the social or scientific reality or significance of an issue as understood by specialists.
>
> *(2005:1477)*

Sixth, different media formats affect the amount of space environmental issues receive and how they are framed. Different newspapers, for example, are governed by their own particular restrictions, professional cultures, and distinctive ideological standpoints (Carvalho and Burgess, 2005). There are also important differences between different types of media outlets. We still know relatively little about the different factors that affect environmental coverage in local/regional media as opposed to national and international media (Anderson, 1997, 2007; Hansen, 2010; Howarth and Anderson, 2019). However, studies suggest that there are significant differences between local/regional and national reporting of environmental issues. This includes the amount of space devoted to particular environmental issues, the types of news sources drawn upon, and the framing of the issues (e.g. Cottle, 2000; Crawley, 2007). For example, in the reporting of the Prestige oil disaster of 2002 the regional Spanish press focussed on implications for the local economy rather than the effects on wildlife. By contrast, national newspapers in Spain, France, and the UK framed the oil spill in terms of its ecological impacts and the political controversy over who was to blame (Anderson and Marhadour, 2007). Similarly, Cottle (2000) found significant differences between regional TV news reporting of environmental issues in the UK, which was more likely to air the voices of ordinary 'lay' people, compared with national coverage.

## *External factors*

First, media ownership and the broader political economy clearly shape news content (Anderson, 2009; Boykoff and Yulsman, 2013; Carvalho, 2005). For example, UK-based studies have shown a close relationship between the political agenda and the reporting of environmental affairs (e.g. Anderson, 1997; Carvalho, 2005). Olausson's study of climate change reporting in the Swedish national press found numerous similarities between media and international policy discourse on the issue of climate change (Olausson, 2009). Similarly,

McGuarr and Lester (2009) highlight how *The Australian*, Australia's only daily newspaper distributed nationally, largely followed Prime Minister, John Howard's lead, in its approach to viewing nuclear power as the solution to climate change.

Second, related to this are economic factors. Powerful business interests may exert pressure on the reporting of environmental affairs (see Beder, 2002; Boykoff and Yulsman, 2013). Editor's decisions may be influenced by the fear that running critical items may result in lost advertising revenue (Anderson, 2009). As discussed above, economic conditions can also impact the capacity of journalists to undertake in-depth investigative reporting. Fossil fuel companies have employed the same kind of tactics used by the smoking industry to mount a sophisticated disinformation and deflection campaign on climate change, using social media to sow division and industry front groups to block or delay political action (see Mann, 2021).

Third, an increasing number of international comparative studies (most of which focus on climate change) suggest that cultural factors are highly significant when explaining differences in news production and content (see Boykoff, 2007; Schäfer, and Painter, 2021; Schmidt et al., 2013). The framing of particular environmental issues may resonate more strongly than others with people in different social groupings and in different countries. That is to say, they may connect more closely with culturally deep-seated, historically rooted symbolic imagery. Several studies, for example, show how imagery associated with nuclear energy may link with common cultural narratives in different ways (see Anderson, 1997).

## Concluding comments

News production research has certainly come a long way since the 1970s. The field is ripe for further development given the increasingly complex media environment that we inhabit and the growing influence of strategic communication. Despite a number of calls to move beyond a media-centric approach, the field is still largely dominated by content-based studies. Further empirical work needs to step up in scale to adequately capture the dynamic and competitive processes deployed to frame environmental issues which cannot simply be captured by examining media content. This poses major practical challenges in the era of global digital media where flows reciprocally impact on one another in non-linear ways. As Cottle argues: 'The complex flows of news communications and dispersed productive activity requires international research collaborations as well as methodological ingenuity if we are to capture the online traces of journalist production activity before they evaporate into the virtual ether' (2007:9). Digital ethnography requires considerable flexibility and close attention to both spatial and temporal dimensions as news is created in a variety of virtual and physical places and is in constant flux. As Robinson and Metzler observe:

> The article that resulted from a reporter sitting at her desk, making phone calls, typing away on a deadline – all of which could be observed by a researcher – exists only as part of a digitally enhanced process that cannot be seen. Now that article, which itself resulted from a non-traditional of texts, emails, Facebook comments, linking across the web throughout time and, more often than not, written in spurts on mobile devices, from home or within the newsroom as well as on scene, en route, or even post-deadline – occupies only a small space of the overall content around that news which also entailed tweets, posts, blogs, comments, shared emails, and so on

*(2016: 454)*

Given this complexity, news flow has increasingly become the unit of analysis, which makes the ethnographer's task much more complex. Gaining access to internal as opposed to external virtual spaces allows one to glimpse unseen digital work and is challenging and time-consuming. In addition, digital ethnography poses new ethical issues as researchers observe citizens as well as journalists in the generation of content (Robinson and Metzler, 2016). The degree to which news work can be observed can be severely restricted when the content is sensitive and sources are anonymous. Also, the tendency for news to be continuously updated and re-purposed poses additional challenges (Reich and Barnoy, 2020).

We need to know much more about the impact of technological changes on news work and how this has affected journalists' reporting of environmental issues and their relationship with sources in different national contexts. There is also considerable scope to explore the extent to which claims-makers are successful, not just in gaining visibility through media coverage, but in terms of being portrayed in a credible light and achieving their goals (see Anderson, 2006; Hansen, 2011). Ethnographies can provide illuminating insights into the often hidden intricacies underlying the construction of environmental news and remain as important as ever.

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# 13

# IMPROVING ENVIRONMENTAL REPORTING

## Forging synergies with citizen science and citizen journalism

### *Stuart Allan*

'It's a great time to become a "citizen scientist" and help to save the planet,' a welcoming Euronews article encourages its readers. 'With the coronavirus pandemic sweeping the world, many people in Europe are spending more time looking at computer and tablet screens indoors, or playing more attention to the natural world around them, outside their homes,' it continues. 'Scientists are hoping to tap into this resource with projects that just about anyone with an internet-connected device and sometime can participate in' (Daventry, 2020). Even before the pandemic, these types of articles were gaining media prominence, typically highlighting a range of citizen science projects open for readers to join from around the globe, many with an environmental dimension. Indeed, citizen science, depending on how it is defined, dates back over centuries. It has often been described using a host of different terms – recent examples include 'do-it-yourself science,' 'crowdsourced science' or 'democratised science,' as well as 'mass scientific collaboration,' 'participatory action research,' 'volunteer monitoring' or even 'citizen cyberscience,' For those interested in environmental news reporting, it is likely such terms will be suggestive of similar synergies around journalism. Just as the relationship between the 'amateur' and the 'professional' scientist can prove to be newsworthy at times, such has also proven to be the case between journalists and members of the public who feel compelled to adopt a newsmaking role, either temporarily or on a more sustained basis.

Citizens have long been featured as sources in environmental news reports, typically by sharing their first-hand, eyewitness perspectives from the scene of a specific event (Greenberg et al., 1989; Lester and Hutchins, 2012; Major and Attwood, 2004; Robinson, 2002). Recent years have seen journalist–source relationships dramatically recast, however, with individuals making the most of their digital devices to engage in their own forms of reportage across the internet and social media platforms. Such forms of 'accidental journalism' may include using a smartphone to capture an image or short video clip, craft a tweet, or update a blog or Facebook page in order to connect with distant friends or family – as well as with news organizations, which may be actively gathering such material to supplement their coverage. While these types of developments have begun to attract attention in scholarship concerned with environmental journalism, prospective intersections between citizen journalism and citizen science, I would suggest, warrant greater consideration than they have received

to date. An otherwise impressive co-edited volume, *Routledge Handbook of Environmental Journalism* (Sachsman and Valenti, 2020), is a recent case in point. A scan of its 421 pages reveals zero mentions of citizen science. Citizen journalism fares a little better with a handful of passing references, one chapter mentioning 'laypersons actively commenting on environmental issues' (p.224), while another chastises 'unschooled citizen journalists who are not well versed in principles of journalism such as gate-keeping and agenda-setting' (p.369). More positively, several chapters recognize the growing importance of social media for the evolving imperatives of environmental journalism, which bodes well for future research.

Such explorations, I intend to argue here, might advantageously focus on the forging of co-operative partnerships between citizen scientists and citizen journalists. Accordingly, we begin in the next section by exploring various definitions of citizen science, namely, with a view to pinpointing how those definitions have been applied in practice. Several examples of citizen science projects are highlighted in order to help illuminate contrasting repertoires of engagement. We then turn our attention to a case study of an environmental crisis, namely, the contamination of drinking water in Flint, Michigan first detected in 2014, to show how citizen scientists and citizen journalists working together focused public attention on the exigent nature of an entirely preventable human-made disaster that continues to unfold today. Impromptu, collaborative citizen-centred approaches to environmental reporting emerged to counter scientific indifference and officials' derision for the concerns raised by residents in the affected communities. In assessing the lessons learned, this chapter will identify synergies worthy of further elaboration for future efforts to enrich the quality of environmental journalism.

## Citizen science

Many scientists devote considerable time striving to create effective ways to engage ordinary members of the public (that is to say, 'laypersons' or 'non-scientists') in science, particularly where environmental issues have become contentious. Such efforts have acquired even greater impetus with the advent of digital technologies in recent years – ranging from the personal computer to the smartphone or tablet of mobile participatory cultures – leading some to herald a new age of 'citizen science' dawning on the horizon. While others are quick to challenge any assertion that this is a 'new' phenomenon, pointing out that although 'the internet has clearly increased opportunities for mass participation and "crowdsourcing" data, there is a long history of gathering scientific information from amateurs' (Kilfoyle and Birch, 2014), the growing prominence of nascent forms of collaboration is readily apparent (Allan and Redden, 2017; Vohland et al., 2021; Wynn, 2017).

Definitions of 'citizen science' vary, of course, depending on who is doing the defining in question. One of its early conceptual formulations pertinent to this discussion was introduced by Irwin (1995) in his book *Citizen Science: A Study of People, Expertise and Sustainable Development*. The use of the term in its title was intended to evoke 'a science which assists the needs and concerns of citizens,' he explained, while at the same time implying 'a form of science developed and enacted by citizens themselves' (1995: xi). Pointing out that earlier examples of citizen-oriented science had met with limited success, such as the 'science for the people' movement, Irwin stressed the time was right for a re-evaluation. Of particular interest to him were the kinds of knowledges ordinary individuals develop and bring to bear 'in the face of the truth claims of science,' as well as the active role they may choose to play in wider processes of knowledge dissemination. Using a series of case studies, he proceeded to discern the features of what he termed 'contextual knowledges,' which are typically put

together 'piecemeal' by citizens actively 'learning through doing,' usually incorporating technical information in an ad hoc, selective manner. Such involvement may well produce tensions, of course – the relationship between the contextual knowledges of lay accounts and the more formalized ones of official science can be fraught, particularly where the latter seem 'impervious to renegotiation and revision on the basis of locally generated evidence' (1995: 128). Citizens struggling to have their knowledges recognized and substantiated by decision-making authorities (with the hope that they will be acted upon) may be all too aware of what Irwin termed 'the social gap' between these different forms of expertise, and thereby 'the inappropriateness of most enlightenment assumptions about the public under-standing of science' (1995: 131).

Conceptions of citizen science placing an emphasis on the production of knowledges help to open up afresh familiar debates about expertise and how it is negotiated, even contested in particular circumstances.

> One of the dangers of an increasingly professional and specialized corps of "experts" is the mistaken belief that people who do not have academic credentials, research budgets, and fancy equipment lack the means to contribute to knowledge or discourse about environmental issues

Parris (1999) maintained in the wake of Irwin's intervention. Looking across a range of differing perspectives on what counts as citizen science in this regard, it soon becomes apparent that varied definitions tend to privilege certain recurrent rationales for public participation. More specifically, such efforts are perceived to revolve around one or more of the following imperatives:

- the enrichment of scientific understanding with accurate, cost-effective, and often time-critical data collection;
- fostering communities of practice where expertise in scientific inquiry is shared;
- enhancing civic pride and awareness with the promotion of values associated with 'science-literacy,' citizenship, and responsibility to the natural world;
- encouraging the development of numeracy as well as practical skills and techniques in observation, measurement, or computational activities (including the use of online re-cording or smartphone apps);
- expanding productive links between communities and their local environments for sus-tainable development;
- raising the public profile of education or careers in environmental science;
- and, most important for some, representing an enjoyable hobby, consistent with an active lifestyle.

These imperatives are recurrently interwoven, typically signalling emphases rather than stark differences, but together they help to explain how priorities emerge under particular circumstances.

Members of the scientific community typically welcome the enthusiasm of dedicated 'amateurs,' but some tend to be rather sceptical about whether the results being produced satisfy research-grade standards. 'Naysayers might chide, "The data are of poor quality, they cannot be trusted; they could be misleading or even dangerous; and they are certainly not admissible in court,"' Schnoor (2007), editor of *Environmental Science and Technology*, points out. Certain scientific tasks are better than others for citizen science, he concedes,

and findings always need to be interpreted with due attention to how they were achieved. Still, he adds, there 'is a sizable literature which attests that data collected by properly trained citizen volunteers are of as high a quality as those obtained by professionals with the same equipment' (2007: 5923; see also Bonney et al., 2009; Caitlin-Groves, 2012; Cooper, 2017). Further research suggests that projects must be made meaningful for prospective volunteers, which is to say enjoyable and rewarding. A 2012 report by the UK Environmental Observation Framework stressed the importance of enthusiasm for the goals being set, as well as feelings of control over the scientific process. 'Projects must be tailored to match the interests and skill-sets of participants,' its authors state, 'and understanding the motivations and expectations of potential volunteers is crucial to developing successful projects (Roy et al., 2012: 5; see also Bell, 2010). Equally important, other studies suggest, are efforts to ensure communities become active stakeholders in pursuing research of relevance to them, with local concerns and priorities oriented toward shaping policy formation. Here, it is worth noting that socially marginalized, economically deprived communities are much more likely to be overlooked than prosperous ones in this regard, even though environmental problems may be that much more apparent (Rowland, 2012; see also Blake et al., 2020; Davies and Mah, 2020; Dickinson et al., 2010).

The growing significance of online citizen science projects – striving to make the most of digital, web-based resources – underscores how the boundaries of professional science are being redrawn. Lending shape to the ethos of these 'new wave' projects is their commitment to moving beyond more traditional, deficit-model (top-down, zero-sum) conceptions of the 'public understanding of science' in order to emphasize meaningful engagement in co-operative ventures. Examples of projects attracting news headlines include:

- For India's 1.3 billion people coping with a nationwide stay-at-home order intended to slow the spread of COVID-19, several opportunities emerged to become involved in citizen science projects. One example is the 'Lockdown Wildlife Tracker' mobile application, launched under the auspices of the Wildlife Institute of India in Dehra-dun. Its website encourages participants to share reports of 'wildlife exploring human-dominated areas or "rewilding" urban areas' from 'the comfort of your home' or while performing essential activities (it cautions against making 'any special efforts to gather such information which may be against the spirit of the lockdown'). Many such mobile reports include photographs of sightings uploaded in real-time with the device's global positioning coordinates, as well as the name of the animal, bird, or reptile in the regional language. Once gathered and authenticated, the project's collected data will be presented 'in an organized manner to help visualize interesting patterns of wildlife habitat use that are unfolding during this period.'
- Daily weather reports are a rich resource of climate data, even old ship logs from centuries ago. Various iterations of 'Weather Detective' have been launched in several countries around the world, encouraging members of the public to become citizen scientists to help decipher weather observations made at sea. Typically held in archives, maritime logbooks are being slowly digitized in order to widen public access, with volunteers performing tasks – not least reading and transcribing sailors' handwritten measurements and annotations – computers would struggle to achieve. In addition to advancing scientific understanding of climate change, interpreting the 'raw data' from these records promises to improve forecast modelling, including identifying meteorological events and long-term patterns. Organizing results from the 18th century onwards into a weather reconstruction database is an extraordinarily ambitious project for climate

heritage, one being made possible by crowd-sourcing detective work otherwise impossible to financially support.

- PlatypusSPOT is a citizen science platform designed to improve platypus conservation and protection in eastern Australia, including Tasmania. It seeks to engage 'wildlife enthusiasts' – such as 'local residents, workers, tourists, fishermen, campers, hikers/bushwalkers and general outdoor recreationists' – by inviting them to contribute to a 'community-driven database' mapping platypus distribution, namely, by sharing sightings and/or posting photographs and videos from their area. Accurate counting of the semi-aquatic, nocturnal, egg-laying mammal is difficult, with much debate over whether or not it constitutes a threatened species. Some researchers are convinced numbers have declined markedly over recent years, its habitat having shrunk due to land clearing, water extraction, droughts, bush fires, and amongst other factors. Seeking to 'tap into your knowledge,' the platypusSPOT website requests prospective participants to download its mobile app. 'No-one knows their area like a local,' one of the ecologists involved points out, 'so we're calling on the community to become citizen scientists and help us find out more about this amazing animal' (cited in Plural, 2021).

- Combining drone imagery with machine learning algorithms, 'The Plastic Tide' citizen science project endeavoured to develop a program able to independently, automatically catalogue the levels of plastics and marine litter washing up on the world's beaches. Researchers, its website states, can account for 1% of the total volume.

  > By tagging plastics and litter in the images we take with our drone, citizen scientists directly teach our computer program to autodetect, measure and monitor plastics to help researchers answer how much of the missing 99 percent ends up on our beaches,

  it continues. 'The more you tag, the better the computer program gets at identifying plastics!' The project is currently being refashioned by Ellipsis.Earth. 'We've designed an algorithm that can automatically detect 47 different types of waste to 93 per cent accuracy, processing around 10,000 images a second,' its founder Ellie Mackay (2020) states. While a global inventory will take some time to achieve, the 'treasure hunts' for video and stills for the platform continues – or, the site promises volunteer contributors, 'one of our network of 500+ drone pilots can come to you.'

- As its name suggests, 'EcoBuilder' is a smartphone game encouraging players to have fun by building their own virtual ecosystem. Researchers at Imperial College London explain it was developed to contribute toward the resolution of a longstanding ecological debate, namely, the 'stability vs complexity' theoretical problem. That is, according to mathematical models, ecosystems with many thousands of species should collapse, and yet they exist nonetheless. EcoBuilder challenges players to devise strategies to ensure as many plants and animals thrive as possible, earning points as they strive to ward off extinction (while researchers gain better insight into the mathematics driving the models). 'After completing a set of levels designed to teach players all about the dynamics of ecosystems,' the instructions state, 'you will earn the right to compete on global leaderboards, where users are ranked according to who can build the biggest and most healthy ecosystems.'

To the extent these and related projects privilege collaboration over competition, they help to expand the scope of scientific institutions. Efforts to establish and sustain a symbiotic relationship between professional and citizen science will recognize that it is contingent upon

a range of factors, such as flexibility in project leadership and decision-making roles; shared involvement in the setting and refinement of research questions, priorities, and protocols; and the necessity of securing participatory capacity for mutual learning, among other considerations. Greater openness, in principle, enhances transparency, thereby inviting public trust in knowledge production that is as beneficial as it is socially responsible.

Citizen-led environmental journalism can be differentiated from traditional news media reportage of environmental risks, threats, and hazards at several levels, particularly where it is closely associated with activist-centred priorities. Given the challenges news media organizations encounter when reporting environmental concerns, citizen environmental activists strive to make the most of opportunities to take up journalistic-style roles with the aim of communicating outside the boundaries characteristic of more mainstream news coverage (Hansen, 2019). In the next section's case study, we pay particular attention to the ways in which citizen science can be aligned with citizen-initiated forms of reportage for reasons of strategic necessity.

## The flint water crisis

Frequently described in news reports as one of the worst environmental disasters in United States history, the water crisis in Flint, Michigan continues to reverberate to this day. Briefly, in response to a severe financial deficit confronting the city, its emergency managers (appointed by the state's governor) initiated a change of water supplies from Lake Huron to the Flint River in April 2014 as a money-saving alternative. Residents noticed alarming changes in the taste, smell and colour of their water shortly afterward. The legitimacy of their concerns was robustly denied by city and state officials intent on dispelling 'urban myths' about is relative quality for several months. By August, however, residents were being advised to boil their tap water because *Escherichia coli* and fecal coliform bacteria were being detected. Early in 2015, it was confirmed the city was in violation of the Safe Drinking Water Act, the level of total trihalomethanes (TTHM) in the water – caused by extra chlorine being added to address the bacteria – now exceeding the maximum contaminant level considered acceptable (some types of TTHM being possible carcinogens for humans).

In February the following year, a city test of the water in resident LeeAnne Walters' home revealed high lead content, Walters having complained to the city about the orange-brown tint it had acquired the previous December. She was also increasingly worried about recurring skin rashes her three-year-old twins were experiencing (misdiagnosed by a local doctor as scabies), and by her 14-year-old son's illness, which seemed to be associated with water contact in the bath or swimming pool in their yard. In April, Walters alleged medical testing had revealed one of her twins was suffering from lead poisoning, a diagnosis appearing to correspond with growing data gathered by independent researchers correlating very high lead levels with the absence of corrosion control measures at the Flint Water Treatment Plant. Lead acts as a neurotoxin. Officials denied there was a problem, insisting the Walters test was an 'outlier,' but as evidence of elevated lead levels mounted, Flint's Mayor declared a state of emergency in December 2015. Further emergency declarations were made the following month, first by the state's governor, Rick Snyder, and shortly thereafter by President Barack Obama, who authorized federal resources be mobilized to support affected communities.

Flint's citizens played a critical role in bringing the health hazards engendered by this mismanagement of the contaminated water supply into the media spotlight, despite formidable resistance from officials. A preliminary report released by the Flint Water Advisory Task Force in December 2015 contended the Michigan Department of Environmental Quality

(MDEQ) response to concerned members of the public 'was often one of aggressive dismissal, belittlement, and attempts to discredit these efforts and the individuals involved.' It underscored MDEQ's 'persistent tone of scorn and derision,' stating: 'In fact, the MDEQ seems to have been more determined to discredit the work of others – who ultimately proved to be right – than to pursue its own oversight responsibility' (cited in Johnson, 2015). In seeking to compel the authorities to listen to their concerns, residents such as Walters began gathering scientific evidence. A 'stay-at-home' mother of four, she made the most of her spare time to become an 'amateur water expert,' as she would be later dubbed by the local press. Dangerously elevated lead levels were revealed in further city testing of her tap water she had demanded, prompting her to secure a list of the chemical ingredients the Flint treatment plant was utilizing. Due to her extensive background reading, she recognized the absence of corrosion inhibitors on the list meant something was awry. City officials refused to take her concerns seriously, so she shared her finding with EPA expert, Miguel Del Toral, who corroborated her suspicions the city appeared to be breaking the law. The two of them liaised with Professor Marc Edwards at Virginia Tech University, who explained to Walters over the telephone how to conduct a sampling procedure for 30 bottles of tap water. Edwards' lab team was astonished by the hazardous levels of lead it detected, but Del Toral was unable to persuade the EPA to exercise its emergency powers.

The citizen science project Flint Water Study was launched in mid-2015, Edwards having obtained the resources necessary for his lab to test tap water samples gathered by the city's residents following a straightforward protocol. Walters and Melissa Mays, who shared her sense of responsibility as a mother to protect her family, organized a citizen group 'Water You Fighting For?' to distribute 300 sampling kits across the city. In total, 271 kits were returned with usable data, 45 samples exceeding 15 parts per billion (at almost 17% of all samples, the results were well above the threshold for action; see Langkjær-Bain, 2017). Several other citizen groups came to the fore in a rapidly forming grassroots, 'mother-run' coalition of 'water warriors' taking political action. 'No one would be doing anything now if it wasn't for a bunch of moms getting mad,' Mays stated in an interview later, inspiring a movement of 'citizens who banded together and did all the protesting, marching, rallying, researching, and testing. I'm proud of us who did the state's job to find out the truth and demand justice' (cited in Dawson, 2016). For some of the activists involved, the crisis represented 'environmental racism,' many of the majority-black city's most vulnerable communities living in poverty entrenched, in part, by systemic prejudice and discrimination (MCRC, 2017).

Notwithstanding the sexism Mays and Waters encountered as 'crazy moms' in denial of their expertise, their whiteness helped centre media framings otherwise disinclined to treat the voices and experiences of ethnic minorities with equal import (Jackson, 2017; Takahashi, et al. 2020). One initiative that succeeded in helping to unify residents in a common cause was the Flint Water Class Action (FWCA) group's website. It transformed into 'a clearinghouse for tales of water and health woes and a vehicle for a kind of collective investigation of the city's water quality problems,' Pauli (2019) writes. 'It became a repository for a growing pile of visual evidence that Flint's water problems were systemic,' he points out: 'when one resident would post a photograph of cloudy or discolored water, or a nasty rash that appeared in the shower, several more photographs of the same thing from other residents would pour in' (2019: 147). Social media platforms such as Facebook and Twitter similarly facilitated the sharing of citizen reportage, including first-person testimonies in blog and social media postings, instructional videos, as well as improvised maps and diagrams.

The interweaving of citizen science with citizen journalism proved strategically vital for residents attempting to overcome the dismissive condescension of 'credentialed' officials,

scientists, and doctors insisting their claims were alarmist or uninformed, even conspiratorial. In some instances, the technical terms of scientific standards of evidence were effectively weaponized to delegitimize Flint's residents' claims as lacking sufficient credibility to be taken seriously (see also Roy, 2017; Smith, 2016). Endeavouring to keep frustration in check, residents were discovering journalistic hierarchies required them to express the authority of their expertise in a calm, steady language of verifiable facts in order to avoid being marginalized, or ignored altogether. Coping with being on the wrong end of power differentials would necessitate creative thinking and resistance. Alternative, impromptu news and social media sites opened-up spaces for civic empowerment, helping 'ordinary' people ('amateurs,' 'non-scientists,' 'lay collaborators') to speak for themselves on their own terms. Mistakes happened − scientific information was sometimes presented in a confusing or inaccurate manner, for example, or citizen news updates turned out to be false, unintentionally so or otherwise − but in the main, such difficulties were swiftly set right by informal collective fact-checking online. Digital activists' recasting of conventional relations of credibility gradually became easier to negotiate. As the influence of community-led networks grew, mainstream news organizations increasingly turned to them for insight into how neighbourhoods were being affected (first local media, and nearly a year after resident complaints began surfacing online, the national media, if still hesitantly for months). Citizen scientists and citizen journalists were joining forces, not least via advocacy websites and social media platforms, to first alert and then educate fellow residents about water contamination, co-ordinate its sampling for testing, and to galvanize and promote collective action through public meetings, demonstrations, petitions, online press releases, hashtag campaigns, and legal action.

For journalists learning to listen to concerned residents, it took time to become self-reflexive about their own assumptions, including accustomed, ostensibly 'common sensical' ways of mediating contending scientific claims and perceptions of risk (see Clark, 2016). At the same time, residents-turned-activists were on learning curves of their own. Striving to determine how best to enrich citizen journalism's capacity to mobilize citizen science to strategic advantage necessarily invited an experimental ethos, testing grassroots advocacy tactics to see what worked. Building proactive, dialogic relationships with those living with the consequences of decisions made in their name without proper consultation is essential to break down exclusionary barriers to mutual recognition and understanding. Given that the Flint water crisis is still yet to be resolved, Moors (2019) maintains, many such alternative forms of journalism and civic story-telling will have to continue countering prevailing deficiencies in media narratives of the city as a 'lost cause' (see also Jahng and Lee, 2018; Johnson and Key, 2018). Carey and Lichtenwalter's (2020) analysis of press coverage of the crisis echoes this theme, namely, by pinpointing the ways in which certain newspapers have used language steeped in urban pathology to portray Flint residents as 'a downtrodden community unable to do anything but wait for a solution' (2020: 40). Residents' voices seldom appeared in the coverage they examined, the crisis being recurrently framed as a battle among government agencies over the assignment of blame for the water contamination. 'If residents are to initiate change,' this study points out, 'they must first see themselves as agents capable of acting' (2020: 39; see also Hanna-Attish, 2017).

News organizations need to reassess what went wrong in their reporting, then set priorities for improvement as a matter of urgency. Environmental injustices demand constant scrutiny from a myriad of vantage points. For Jackson (2017), this crisis poses 'the agonizing question of what power could have been brought to bear on politicians and environmental and public health officials if the media took the credentials of residents seriously in the first place,' leading him to ask: 'What level of lead poisoning and other illnesses could have been

prevented?' This section has sought to help illuminate certain aspects of the issues at stake by reversing familiar logics, namely, by showing why the narrative parameters of reporting need to be pried open to become more inclusive of diverse experiences, relations of expertise, and challenging perspectives to build trust. In recognizing the concerted efforts of citizen scientists and citizen journalists to address the crisis in their communities, news reporting not only enhances its public relevance, it better fulfils its social responsibilities to be a driver of positive change in the forging of possible solutions.

## Conclusion

'When science and society collide, injustice ensues,' Cooper (2017) maintains, effectively exacerbating divisions between intellectual haves and have-nots:

> The haves feel ownership of science and attempt to wield its power to their advantage. Like one end of a societal seesaw, scientists can exaggerate the importance of data by placing it at the center of decision making. The have-nots feel alienated from science and attempt to deny its power; on the have-not side of the seesaw, the public tends to undervalue data, dismissing complexity and inconvenient information.

Extending her seesaw metaphor further, she adds:

> I have come to see hobbyists, amateurs, and civically engage people who participate in scientific research as gathering at the center, demonstrating balance on the beam that is the fulcrum of the seesaw. For this reason alone, citizen science has power and potential greater than that of science confined to the ivory tower.
>
> *(Cooper, 2017: 271)*

How best to harness this 'power and potential' invites an array of context-specific responses, of course, but it is in dialogue and debate that productive ways forward will be secured. A first step, as we have seen above, is to move beyond stereotypical assumptions about scientists and members of the public alike in order to promote an alternative ethos (Brüggemann et al., 2020; Vohland, 2021; Wynn, 2017).

Amongst the citizen science projects with important environmental dimensions garnering news media attention in the early phases of the coronavirus pandemic was The COVID Data Tracking Project. Launched by two journalists at *The Atlantic* magazine in the US, the initiative – as stated on its website – called upon 'hundreds of volunteer data-gatherers, developers, scientists, reporters, designers, editors, and other dedicated contributors' to collect data on COVID-19 testing and patient outcomes at county level nationwide. 'For months, the American government had no idea how many people were sick with COVID-19, how many were lying in hospitals, or how many had died,' *The Atlantic*'s Meyer and Madrigal (2021) pointed out, which made this temporary volunteer project 'a de facto source of pandemic data.' In short order, it became widely trusted by epidemiologists and health officials, as well as news organizations and citizen journalists alike. 'It's kind of mind-boggling that it's fallen to a group of volunteers to do this,' one of the project's early 'checkers,' Kara Schechtman, maintained (cited in Armstrong, 2020). Further facets of underlying disparities in economic, health, and environmental conditions came to light when this data tracking was shared with Boston University's Center for Antiracist Research for further analysis, prompting the COVID Racial Data Tracker to be formed in partnership. The pandemic

is 'disproportionately affecting our Black, Latino and American Indian/Alaska Native (AI/AN) communities,' the American Hospital Association (2020) reported on the basis of this repository of cross-tabulated evidence. 'Black and Latino Americans are three times more likely than white people to contract COVID-19.' Environmental factors are amongst several others cited by the AHA for exacerbating the spread of the virus, including inadequate transportation or safe and affordable housing, as well as relative proximity to toxic ecological hazards. 'COVID-19 doesn't discriminate by race,' Peck (2020) of *The Atlantic* surmised, 'yet it has still laid bare the brutality of racism in the United States.'

Efforts to secure new strategies in this regard have much to gain by fostering productive synergies between citizen science and citizen journalism, thereby making the most of their potential to reinvigorate 'mainstream' environmental news coverage. In this chapter, I have highlighted certain aspects of the two with a view to inviting further explorations of their potential for rethinking how best to improve environmental journalism. The tensions between professional and citizen science will continue to spark lively, often diverging points of view, but where austerity measures compromise environmental health mitigation for socio-economically disadvantaged individuals and groups, few would dispute that the time is right to nurture community-based collaborations. Despite the frictions that sometimes occur, there is much to be gained by mutually respectful deliberations over how best to encourage environmental journalism to reconsider its guiding tenets afresh (Appelgren and Jönsson, 2020; Rögener and Wormer, 2017). Chief among these concerns, as brought to light by the Flint case study above, is its over-reliance on official voices to demarcate inferentially politicized parameters of newsworthiness. Precisely what counts as legitimate scientific evidence in this regard frequently proves to be much more important – and open to debate – than journalism's time-worn conventions tend to recognize, not least because the issues at stake do not fit easily within event-centred narratives revolving around unexpected novelty, drama, conflict or scandal. It is early days for efforts to maximize the potentials afforded by the types of ad hoc partnerships emergent in the Flint crisis, yet this case study provides formative, if inchoate indications of how such partnerships may further consolidate to the betterment of crisis communication in the years ahead.

Several obstacles loom large in the path of those committed to improving environmental journalism, however, as other contributors to this volume have similarly sought to make clear for further investigation. At a time when most news organizations are coping with increasingly severe resource restrictions, with journalists working under intense time pressures to produce multiple versions of news stories across various platforms, commitments to specialist genres of investigative reporting become increasingly difficult to justify for cash-strapped news organizations. The demands placed upon environmental journalists have always been formidable, of course, yet they continue to intensify (Hansen, 2019; Hansen and Cox, 2015; Sachsman and Valenti, 2020). Still, while the internet and associated digital technologies are bringing to bear new demands and contingencies, I have sought to show that they also have the capacity to foster innovative alternatives. Conventional journalist-source dynamics are being recast, not just in the blogosphere where citizen scientists subject news stories to interrogation for accuracy's sake, but also where others partake in either scientific or journalistic activity of their own (and sometimes both), often motivated – as we have seen – by a personal desire to cultivate more open, responsive cultures for scientific discourses to overcome distrust. The opportunities afforded news organizations to facilitate such forms of public engagement with environmental issues are becoming increasingly apparent as citizen science grows in stature and influence, yet much work remains to be done to consolidate this potential in ways that encourage greater dialogue, transparency, and trust.

## Acknowledgements

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In striving to understand citizen scientists and their motivations, this book poses several questions to guide its enquiry: 'Who are they? How do they contribute? Why do they do it? And, do they realize the impact they're having?' In its pursuit of answers, Cooper delves into key issues, concepts, and debates, including several examples of citizen science projects committed to addressing pressing environmental problems.

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Investigating how and why a water treatment crisis in Flint, Michigan turned into an international symbol of environmental injustice, this book traces the emergence and contestation of technical, historical, and political narratives of the crisis. Particular attention is devoted to activism, including citizen science initiatives to challenge power elites (not least those in media) in the interest of democratizing environmental decision-making.

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# 14

# TRANSFORMATIVE JOURNALISMS

## How the global ecological crisis is transforming journalism

*Michael Brüggemann, Jannis Frech and Torsten Schäfer*

### Introduction

The new millennium has seen diverse news desks from the Guardian to GEO pledging to make reporting about climate change a top priority. It has seen the emergence of new types of specialized online outlets like Inside Climate News or journalistic outlets with an explicit green agenda like Grist. It has seen the emergence of transnational networks focused on climate coverage like the 2019 Covering Climate Now initiative that comprised 400 media from around the world – these examples illustrate how journalism seems to finally respond to the "test of capacity" (Nerone 2015) posed by global ecological risks. The changes include both new news production practices and the discursive renegotiation of the traditional self-understanding of the profession. This chapter attempts to grasp these changes with the concept of transformative journalisms, defined as professional journalistic practices that aim to support the multi-faceted transformations toward more sustainable societies.

Ecological threats challenge journalism by challenging a core notion of journalistic role perceptions: the idea of the neutral and distant observer. While the concept of neutral observation has always been dubious from the perspective of constructivist social sciences, it has now become apparent to many journalists that no one can or should remain neutral and keep distance when the well-being of humanity, one's community, and the future of one's children is at stake. The diagnosis of a "world risk society" (Beck 2001) that is fundamentally threatened by the side–effects of technological progress is widely shared, and we argue that this has also led to a partial re-definition of and new practices in journalism. We introduce the concept of *transformative journalisms* to grasp these new role conceptions and practices.

The term *transformative* refers to the transformations that are upon humanity faced with the set of interrelated ecological challenges such as climate change, extinction of species and degradation of soil, water, and air. The term will remind English readers of the title of a book by Polanyi (1945) about the rise of capitalism, but it instead connects to the third type of transformation (after the Neolithic and the Industrial Revolution): the multi–dimensional transformations that make our societies at the same time ecologically, socially and eco–nomically sustainable. The call for such a process of socio–ecological transformation, in the European context, often goes back to a report by the German Advisory Council on Global Change calling for a global social contract for sustainability (WBGU 2011).

We use *journalisms* in the plural in order to point to the wealth of different practices that emerge in response to the intention to contribute to ecological transformations by doing journalism. Transformative journalisms are sometimes practiced in close cooperation with environmental movements, accompanied by meta-discourses about the role of journalism in the process of ecological transformation, but other approaches may focus on a different kind of climate change reporting.

The concept goes beyond advocacy journalism for more limited interests or goods: transformative journalists advocate the ultimate public good of saving the ecological balance of the planet. While to some degree, environmental journalism always has had transformative moments, we see how ecological concerns spill over from the environmental beat into newsrooms instilling new practices that also change traditional environmental journalism.

This chapter will further elaborate the concept as sketched out above and review empirical studies of recent changes in environmental and climate journalism. It will identify the gaps in current research and thus provide an analytical framework and an agenda for future studies.

## The objective reporter and different shades of advocacy

Mainstream journalism is shaped by role conceptions centered on the idea of the independent, neutral, and distanced observer (e.g. Hanitzsch et al. 2019), a core set of values subsumed under the label of objectivity (e.g. Westerstahl 1983). Following Westerstahl (1983, p. 405) journalistic objectivity rests upon two pillars: factuality and impartiality. Factuality implies that reporting should (a) be factually correct and (b) provide information that is relevant to the respective audience. Impartiality consists of (a) neutrality and (b) balanced reporting representing different opinions. Opposing "advocacy journalism" was part of the journalistic self-understanding in the United States in Herbert Gans' classic newsroom observation (1979, p. 186) leading newsrooms to recruit journalists without personal interest in politics and averse to articulating any kind of political opinion.

Different types of advocacy have always been part of journalism, even though the neutral observer role has become the dominant role cross-nationally (Hanitzsch et al. 2019). The distinction between two journalistic roles (the advocate and the gatekeeper) has been with us since the beginning of the systematic study of journalistic role conceptions (Janowitz 1975). A similar but not identical typology distinguishes active and passive roles: the extreme form of the latter being the idea of journalism as a passive mirror (Skovsgaard et al. 2012). The advocacy journalist, an active role perception, was originally seen as speaking on behalf of disadvantaged groups that lacked strong advocates (Janowitz 1975). Today advocacy journalism is defined more broadly as "journalism that combines reporting with a point of view" and "supports or argues for specific causes, policies, or issues" (Bachmann Cáceres 2019). Even today, the more elaborated frameworks for distinguishing different roles (e.g. Donsbach 2008) may still be re-grouped into two camps, journalists with a mission (following Donsbach's typology (2008): educational, participant, and advocacy) and those without (neutral, observational, and commercial).

This binary opposition can be criticized, arguing that different patterns of journalistic practice may rather be located on a continuum from less to more advocacy (Fisher 2015). Interesting to our topic is the distinction between "regressive (status quo)" and "progressive (change)" advocacy (Laws and Chojnicka 2020): from this perspective, the neutral-observational and commercial journalism may be put into the category that effectively advocates for the "status quo".

Another concept that is not rooted in advocacy journalism but still relevant to the challenge of covering a sustainable future is the concept of *constructive journalism*. It claims that journalism endangers democracy by delivering a negatively distorted image of the world because of its focus on drama and conflicts (Haagerup 2014). Constructive journalism, therefore, should aim to provide positive inspiration for the future and enable citizens to engage (McIntyre and Gyldensted 2018). Yet, proponents of constructive journalism sharply draw the line toward advocacy and root it in the conventional understanding of objective journalism (Aitamurto and Varma 2018).

Crossing this line is the concept of *civic advocacy journalism* (Waisbord 2009), which describes the communicative activities of NGOs and social movement actors targeted at journalism (sourcing, training, and criticism) or producing first-hand reporting (Powers 2015).

## The roots of transformative journalisms in environmental journalism, climate reporting, and the emergence of a hybrid digital media sphere

The roots of transformative journalism lie in the different shades of advocacy journalism, but for our understanding of transformation toward *ecological* sustainability, the most important root is environmental journalism. Environmental journalism is in itself a relatively young branch of journalism, developing from the 1960s quickly in Western countries exposing environmental disasters, pollution, and its effects. The field was institutionalized fairly late by e.g. the foundation of the Society for Environmental Journalists (SEJ) in the US in 1990 (Neuzil 2020).

The second root of transformative journalisms is, more specifically, the coverage of climate change has emerged in the 1990s. The issue has become a small beat of its own kind at the cross-roads of science, environment, and political reporting with a very small group of highly specialized "prolific climate journalists" providing continuous specialized reporting and a large group of "occasional climate journalists" from all sorts of backgrounds often following their lead (Brüggemann and Engesser 2014).

Mainstream media, so far, have neither been able to continuously pay attention to climate change nor is there a steady increase over the years as is sometimes claimed in the literature. The ups and downs of climate coverage are well-documented, thanks to two observatories (Boykoff et al. 2020; Brüggemann and Sadikni 2020). The share of articles that even mention the issue fluctuates below 5% of all articles (Brüggemann and Sadikni 2020). Attention for ecological issues seems indeed to be going up and down, as posited in the metaphor of the issue attention cycle (Downs 1972). Intensive press coverage is only achieved during exceptional moments when a constellation of different factors comes together, including extreme weather events combined with political, scientific, or civil society actors providing "reporting opportunities" (Ungar 2014). During the last decades, this happened only in the years 2007–2009 and 2018–2019.

After a cross-national increase of attention from the 1990s to 2009 (Schmidt et al. 2013), attention peaked by the end of 2009. A combination of different focusing events created the ground for this all-time high of attention. Hurricane Katrina (2005) and Roland Emmerich's movie "The Day after Tomorrow" (2004) brought real and fictional images of disaster, while both Al Gore's documentary "An Inconvenient Truth" and the fourth IPCC (Intergovernmental Panel on Climate Change) report explained the scientific evidence, also winning the Nobel Peace Prize in 2007 together. The report by Nicolas Stern from 2006/2007 calculated the costs of neglecting climate change (Stern 2007).

The policy failure of the UN climate summit in Copenhagen resulted in almost a decade of journalistic neglect of the issue of climate change. Even the important summit in Paris

brought only short-lived attention to climate change in 2015. A change came in 2018 with a hot and dry summer, and Greta Thunberg's climate protest, combined with scientific warnings from climate scientists and record heat and wildfires in 2019, started off a spiral of public attention that was halted by the COVID pandemic (at the time of writing in 2021).

Going beyond the analysis of more attention to the climate issue, Schäfer and Painter (2021), in a comprehensive review of the literature on climate and environmental journalism, identify three interrelated changes in environmental journalism: (1) a crisis of traditional news outlets, (2) the rise of online and social media, and (3) a pluralization of voices and content in public communication. Many specialized science and environment reporters employed by newspapers have lost their jobs, but we also witness the emergence of new types of niche and specialized outlets providing also a new professional home to some of them – and an opportunity to reinvent the coverage of global ecological risks.

"Digital-born" media organizations, such as Buzzfeed, Vice, and Vox (Painter et al. 2018), as well as specialized niche sites, such as Carbon Brief and Inside Climate News "have moved from just aggregation or commentary to original reporting" (Painter 2017)). A niche website like Inside Climate News, founded in 2012, was able to win a Pulitzer award in 2014 (Brüggemann 2017). These new players often target a younger audience with a strong interest in environmental matters, so that the focus of e.g. Huffington Post, BuzzFeed, Vice, Vox, and Quartz on this issue is not only about idealism but also part of a business model targeting the interests of their audiences (Painter et al. 2018). New outlets specializing in climate change or sustainability-related issues have also evolved in Germany (e.g., Klimafakten, Grüner Journalismus, Clean Energy Wire). Another example is the independent RiffReporter platform, a network of more than 80 journalists, that feature "channels" for bird journalism and river journalism.[1] These new online outlets are not restricted to the western world, even if sites like China Dialogue or India Climate Dialogue are partly written in English. There are examples in South America (e.g. Observatório do Clima in Brazil), Russia, and the African Continent (Sachsman and Valenti 2020l; Schäfer and Painter 2021). Interestingly enough, "one aspect common to all of these sites is that former journalists from legacy media occupy senior managerial or editorial positions" (Schäfer and Painter 2021).

These outlets manage to attract readers: the Digital News Report 2020 found TV as the most important source of climate-related information for 35% of media users in 40 countries, but "specialist outlets covering climate issues" came in third as the most important sources for 13% of respondents (Reuters Institute 2020). In line with this finding of TV as the most important source is the observation that public broadcasters like the BBC have also expanded their coverage of the climate and the environment (Schäfer and Painter 2021).

We lack data on how many environmental or science reporters are now working with NGOs (see above: civic advocacy journalism) or with academic institutions as the boundaries between advocacy, science and journalism are blurring in "post-normal science communication" (Brüggemann et al. 2020). NGO employed "press officers" combine journalistic norms (accuracy, pluralism, and timeliness) with the value of advocacy (Powers 2015). While Powers does not call them journalists, Vine (2017) insists that his own work for Greenpeace is a specific type of investigative journalism: "advocacy journalism with strict ethical guidelines produced from within an organization with a known agenda". Support for advocacy roles seems to thrive particularly among environmental journalists working for online outlets (Tandoc and Takahashi 2013). This is plausible as new role perceptions are likely to evolve in new organizational environments.

Yet, change is taking place across the whole field of environmental journalism. Environmental reporters have redefined the conventional understanding of objectivity (Fahy

2018): the norm of balance in the sense of neutrally quoting different is being replaced by interpretive reporting providing contextual information about dissenting voices that e.g. deny the existence of anthropogenic climate change (Brüggemann and Engesser 2017). In science reporting, this has been labeled "weight-of-evidence" reporting, i.e. pointing out whose statement is backed by evidence (Dunwoody 2005). "Interpretation borne out of journalistic experience and extensive research" is seen not as an alternative to but as *a form of* objective reporting (Hiles and Hinnant 2014, p. 446). These "trained judgements" come with transparency about one's own reasoning (Fahy 2018, p. 855). Finally, environmental journalism searches to identify not only contestation, but also "the pluralistic search for consensus around areas of shared understanding" (Fahy 2018, p. 860). These practices have, so far, only partly spilled over into mainstream journalism, however. Merkley (2020) shows that, with regards to climate change, balanced coverage, indeed, has receded, but journalists still fail to point out where the scientific consensus lies.

Yet, it seems that climate and environmental journalism are certainly moving away from a passive definition of the journalist role toward a more active, but the transformative journalisms that we shall discuss below go one step further.

## Our concept: transformative journalisms

We propose to conceptualize *transformative journalisms* as a particular kind of progressive advocacy: promoting social transformations toward sustainability by doing journalism. Our analytical framework draws on a term ("transformativer Journalismus") that has so far been mentioned (as a call for change in journalism) in the German language debate among practitioners and academics a few times in recent years (Krüger 2021; Ronzheimer 2013; Schneidewind 2018), but it has not yet been conceptualized in a more systematic way. In the most elaborated approach so far, Krüger (2021, p. 369) defines it as journalism that provides visibility to actors, processes, and structures that promote ecological transformations toward sustainability while retaining its professional independence and critical perspective toward these actors. This debate is closely linked to Schneidewind's call for a fundamental shift in science – toward a transformational science that is itself an agent and part of social and environmental change (Schneidewind et al. 2016). Our contribution in this text is to provide an analytical framework that is able to capture the different dimensions of ecological-transformative practices in journalism. We pursue an inductive approach systematizing trends in journalism that we observe, drawing both on a review of the existing literature and our own empirical observations of the field of journalism that covers climate change and other ecological challenges.

Drawing on the diagnosis of living in the Anthropocene (Crutzen 2005), warnings about transgressing planetary boundaries (Rockström et al. 2009) and calls for a great transformation of society toward sustainability (WBGU 2011), our own approach starts from the normative premise that a comprehensive and multi-dimensional transformation of societies is necessary to make our lives more sustainable. Following the definition by the United Nations' Brundtland Commission, we understand sustainability as being able to preserve good living conditions for present and future generations around the world. Among the different dimensions of sustainability (ecological, social/cultural, and economic), the first dimension, in line with Raworth's "doughnut model" (Raworth 2017), constitutes the outer ring that limits the space for sustainable economic, social, and cultural development.

Traditional objective journalism is badly equipped to deal with global ecological risks: except for the case of dramatic extreme weather events (storms or flooding) and strategically

staged political-scientific-media events (the UN climate summits and the presentation of IPCC reports), they come as gradual long-term processes that are not directly observable to humans due to their scales in time and space – they are not newsworthy. Furthermore, ecological risks cut across the beats that structure the journalistic perception. Climate change and other ecological risks are meta-issues. Yet, while climate change is well-understood by the science correspondents who have been covering the respective scientific studies for decades, its impact is neither always well-understood and covered by political and economic correspondents nor by local, sports, and culture reporting. Global ecological risks do thus pose a challenge to journalism and not only to those reporters assigned and devoted to the environmental or science beats. Transformative journalism is thus targeted at transforming society but also the newsroom.

As we will show below, our unease with the traditional approach toward covering global ecological risks is increasingly being shared by journalists in different contexts and countries. There is both a journalistic unease with the job description of distant observation of environmental destruction with "a gaze from nowhere" (Haraway 1988, p. 581), applied to journalism by Rosen (2010), and the spreading conviction that "we all need to do something" about ecological risks. Both have led to new ways of talking about and doing journalism that intents to support the diverse social transformations toward a more sustainable world. This point of departure may ultimately lead to a whole range of transformative practices in journalism.

## Transforming journalism on different dimensions

Changes on four dimensions may be distinguished: changing *discourses*, *structures* of news-making (rules and resources), journalistic *coverage* and *interactions* with sources, advertisers, and audiences (see Figure 14.1). In the following, we strive to illustrate ongoing changes on these dimensions. Due to our own limited country expertise and due to the limits of current research on this topic, the choice of examples that we discuss in more detail, unfortunately, displays a bias toward Western, German, and English-speaking countries.
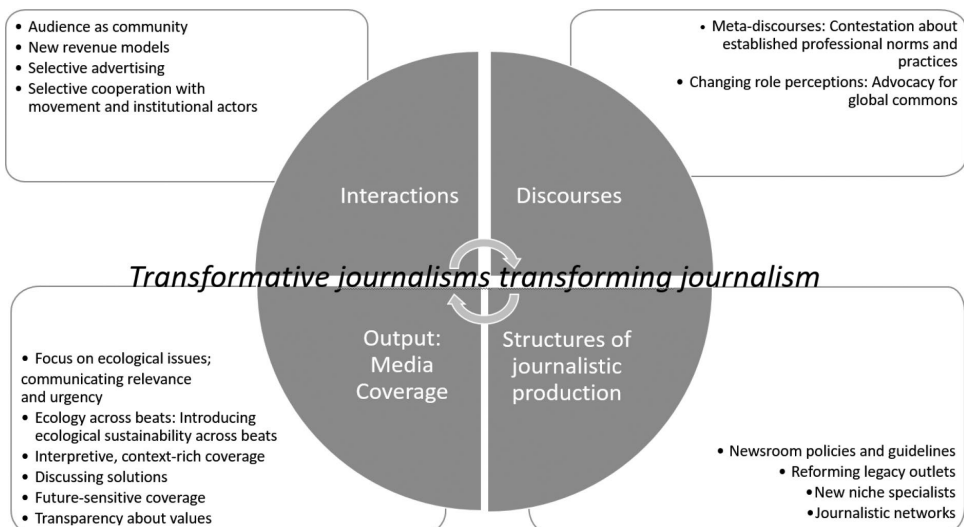


*Figure 14.1*  Transformative journalisms – transforming journalism

1  **Professional discourses**. Journalism is not so much a profession with hard formal-izations of education, aims, routines, and bodies of knowledge, but an interpretive community (Zelizer 1993) that convenes around a shared self-understanding that is constantly being renegotiated discursively (also see the concept of discursive institution-alism, that is also the point of reference for the most recent round of the global Worlds of Journalism study (Hanitzsch et al. 2019)). Therefore, structural changes in journalism emerge, first of all, in the form of intensified meta-discourses that problematize estab-lished norms (such as objectivity or balance) as well as public contestation about the role of journalism in society (Brüggemann et al. 2020). These discourses may lead to changing role perceptions by journalists.

   a   **Meta-discourses**. To our knowledge, there are no studies on meta-discourses about transformative journalism, but we can provide some first-hand summaries from Ger-many. The year 2020 brought to light intensifying meta-discourses about journalistic coverage of climate change. An open letter signed by more than 200 journalists com-plained about the lack of quantity and quality of climate coverage[2] and the two na-tional magazines of journalism ("Journalist" and "Medium Magazin") ran a number of stories. It was the first time since its foundation in 1967 that the "Journalist" made a cover story of climate journalism, giving a voice both to voices that advocate more journalistic advocacy and from colleagues criticizing this as activism and holding up the value of impartiality against advocacy.[3] Leading climate reporters got into a public controversy on Twitter, their blogs and on TV about the need to report more about the uncertainties of climate science or about ways to fight climate change.[4]

   b   **Changing professional role perceptions.** Among environmental journalists, in past studies, explicit advocacy for environmental protection was shared by a sub-stantial minority –– somewhere around a fourth or a third of respondents commit to this role perception in surveys in the US, but similarly also in studies from other countries (Schäfer and Painter 2021). Ytterstad (2012) and Krøvel (2012) find only limited support for advocacy among professional journalists in Norway. Krøvel also observed that during their study time, students changed their attitudes from more engaged to more objective positions at the end and after their academic studies (Krøvel 2016). In Germany, Schäfer (2019) conducted qualitative interviews with leading environmental journalists finding that a majority supported some changes, such as inserting elements of constructive journalism (solutions, success stories), but they were critical toward more fundamental changes in either reporting (such as inserting a climate angle across all beats) or in commentary (such as degrowth or anti-capitalist ideas). Humburg et al. (2016) interviewed both sustainability schol-ars and environmental journalists about better ways for sustainability communi-cation and found three groups: conservative communicators, reformers who are open to changes within the established norms of journalism and "transformative" colleagues who wish to break with current traditions and structures, for example by transparently promoting the goal of sustainability. Drawing on interviews among Swedish environmental journalists, Berglez (2011) came up with a similar typol-ogy identifying journalists working within established media logics, outside, or beyond: aiming to transform journalism. To conclude: even among environmental and climate journalists, broad majorities subscribe to conventional norms and role perceptions, yet they coexist with a minority of transformative voices. Whether this choir is really growing needs to be established by future research.

2 **Structures of journalistic production**. Change may go beyond the discursive sphere and lead to changes in the organizational production structures of journalism. Structures can be defined, following Giddens (1986 [1984]) as rules and resources, thus the changing rules of how to do journalism and the distribution of authority to spend time, money, expertise, and personnel on reporting ecological transformations. This may entail entirely new forms of outlets focused on transformative green journalism. It may also entail the introduction of new sections in news outlets or the hiring of specialized correspondents, section teams, or the re-organization of printing and distribution within established news outlets, as we will show below.

a **New structures in old newsrooms.** The first step here was the announcement of the Guardian toward a green shift with its climate campaign "Keep it in the ground",[5] focusing on divestment and decarbonization of the economy and global energy systems. In Germany, Stern[6] and Spiegel,[7] two important national magazines recently pledged to devote more continuous attention to climate change as a cross-sectional issue. In Spain, the main news agency EFE established a digital platform for environmental news called EfeVerde (Mercado-Sáez and Chavez 2020). The major publishing house Gruner + Jahr announced a complete greening of both the reporting in its magazines (with the nature magazine GEO as its flagship publication). Changes also concern the environmental footprint of journalistic work, starting with a ban on domestic flights, changing the printing and distribution of paper products in more sustainable ways, and becoming "climate neutral" in 2022.[8] Self-reflexive awareness of the environmental footprint of journalism seems to be an important characteristic of transformative journalism.

b **New specialized niche outlets**. Above, we have already discussed the emergence of new digital-born outlets in climate journalism that have been successful in finding significant audiences around the world. There is a lack of research on how these outlets are actually doing journalism (Schäfer and Painter 2021) and whether the resulting coverage is substantially different from legacy news media's output. Painter et al. (2018) find broadly similar themes in covering a climate summit, but differences can be expected and should be explored by future research by both looking closer and at other issues than a climate summit with its fairly restricted and limited reporting environment.

c **Journalistic networks.** Beyond national level networks of freelancers, there are also networks of established news outlets exchanging content like Climate Desk (involving US and UK media), and there even is a global initiative: "Covering Climate Now". It was initiated in 2019 by the Columbia Journalism Review (CJR), The Nation, and The Guardian and has enlisted 400 news outlets from nearly 50 countries for more intensive and continuous climate coverage. The goal is to change journalism in order to protect the climate: "[…] humanity's window to transform our world is shrinking fast. Transforming the news media is fundamental to achieving that goal".[9] Apart from the global reach of the network, it is interesting to note that the CJR, as an academic publication, was involved in driving the initiative. Also, in Germany, the University of Lüneburg was one of the drivers behind activities related to more transformative journalism, e.g., by co-founding the nation's first association for sustainability and journalism, the "Netzwerk Weitblick" in 2015.[10] Similarly, transnational networks like the global Earth Journalism Network have formed to support environmental journalism.[11]

3   **Output: Media Coverage.** Changes in the self-understanding and in journalistic production structures are aimed at and likely to also change the product. This concerns more intensive coverage of ecological risks and what to do about them but also new ways of covering these issues.

    **a**   **Importance of ecological topics**: Above, we have outlined that there is no continuous long-term increase of media awareness of, e.g., climate change, but an increase in 2018/2019 that receded with the COVID crisis in 2020/2021. While there are no studies on this, we can assume that initiatives such as Covering Climate Now have led to more intense coverage. In their review of the literature, Schäfer and Painter (2021, p. 15) state: "Individual broadcasters, such as the BBC in the UK, NBC in the US, and NRK in Norway, have increased their coverage across different platforms". Unfortunately, there is a lack of long-term analyses of the role of ecological risks in the news over time. Even though we also lack systematic studies on the following: we perceive indications of an increasing relevance and urgency of ecological issues being expressed through a different language. In the US press (2001–2013), there was an increase in talking about climate change as a crisis after increasingly stark warnings from scientists included in the respective IPCC reports (Parks 2019). Some news outlets avoid the terms climate change and warming as downplaying the actual risks and problems. The Guardian recommends using the terms "climate crisis, emergency or breakdown" and "global heating" instead.[12] Other news outlets followed, like, e.g., the German daily newspaper *die tageszeitung.*[13] It will be interesting to explore in future research in how far the new language spreads among news outlets in different countries.

    **b**   **Ecology across beats.** The whole idea of sustainability is to draw attention to how our practices in other domains influence the environment. It remains under-researched whether and how journalism already covers ecological challenges beyond the environment beat. As pointed out above, this is the pledge that important newsrooms have made with regards to climate change, but we still need to look more closely at whether change is actually happening beyond what some ecologically minded and specialized environmental reporters do.

    **c**   **Interpretive, context-rich coverage.** There is evidence (see above, e.g. (Brüggemann and Engesser 2017; Hiles and Hinnant 2014; Robbins and Wheatley 2021)), that over the years, climate journalism learnt to go beyond false balance and toward interpretive coverage when dealing with the denial of basic facts related to climate change. Yet, interpretive coverage would mean more, going beyond reporting *events* toward discussing *issues* in order to get a grip on the long-term process of environmental degradation. Whether this is already the case beyond the avant-garde of environmental journalism also deserves empirical scrutiny.

    **d**   **Discussing solutions.** The basic idea of constructive journalism to focus not only on reporting about what is wrong in society but also reporting about solutions fits very well into the concept of transformative journalism. Reporting about initiatives and ideas that try to tackle ecological problems would thus be an important task, albeit coming with the challenge to provide an independent and critical assessment of proposed solutions.

    **e**   **Future-sensitive coverage.** Evaluating potential long-term consequences and mobilizing for a debate about which future we want and which future we are actually heading for would also be part of journalism that supports sustainable transformations. Again, this is a claim rather than a description of research findings.

**f**   **Transparency about values**. Being transparent about values such as sustainability is certainly part of the claim in the pledges of different journalistic outlets. While we do find evidence of this in the self-descriptions of online outlets like Grist.org, we, as researchers, should analyze whether this is also reflected increasingly in day-to-day coverage.

4   **Interactions.** Different production practices and contents may also come with a different relationship between journalism's key stakeholders: sources, advertisers, and audiences. Interactions have already drastically changed due to the emergence of a digitally networked media environment, which meant losing the gate-keeper role and advertising revenues, as well as increasing and easier interactions with sources and audiences. Transformative journalism brings about further changes drawing on these relatively recent developments.

**a**   **Activist/movements/NGO relationship.** The growing public awareness of ecological risks has very much been driven by social movements, NGOs and, in some countries, also Green Parties. For journalism with an explicit green mission, this raises the question of how to deal with those political actors that pursue the same mission. While traditional objective journalism would maintain equal distance to all actors and treat them as objects of reporting and as sources, we observe a closer relationship between transformative media and other actors who share the same concerns for the environment.

Several high-profile magazines and newspapers have cooperated with the Fridays for Future-movement (FFF). In the case of the Swedish newspaper Dagens Nyheter, Greta Thunberg acted as editor-in-chief for one day.[14] The German magazine "Stern" published one issue together with FFF activists, including a kind of making-of story providing transparency about how the issue was produced, giving voice also to journalists who opposed the project for reasons of defending their journalistic integrity.[15]

Some of the new specialized online outlets were founded or are funded by NGOs themselves, especially in the global south. In the Asia-Pacific region, where many local journalists lack the resources for conducting environmental reporting, "NGOs and conservation groups play a vital role in providing both the technical and scientific information to background a piece, […]" (Newlands 2020).

It is interesting to note that even in more conventional reporting of established news outlets from UN climate conferences, coverage has been said to effectively being co-produced by tight networks of NGO representatives and journalists (Lück et al. 2016). Thus, there is a tension between traditional norms of equal distance to all types of actors and common interests in social change among transformative journalism and green advocacy.

**b**   **Relationship with audiences**. All of the above may also aim for and result in attracting new audience segments and intensifying the bonds with existing audiences. Yet, there also is a risk of alienating parts of the established audience and undermining trust in journalistic reporting as the result of a perceived "green bias". If the latter can be avoided, transformative journalism may also pay off as a business model leading to more subscriptions and open up new sources of funding. Many of the digital-born outlets, indeed, attract younger audiences, which are more interested in climate change and other environmental issues (Painter et al. 2018).

There are many interesting examples of closer relations between journalists and their readers. In Russia, journalists are using the channel-functionality of Telegram for "whistle-blowing [… and] analysis of the state environmental policies and companies' actions" (Davydova 2020). So, audiences are included as sources and are also encouraged to act and mobilize for environmental protection. In Uganda's UBC Radio, a series of radio features about sustainable, climate-friendly land use and management by Sarah Mawere, made it possible to reach out to smallholder farmers around the country. Thereby Journalism literally helps to transform agriculture (Jjuuko 2020). It seems that the idea of journalism serving the community that was at the forefront of the public or civic journalism movement is revived in new ways in today's digital media networks.

c   **Revenue policy.** Even as younger audiences are interested in environmental issues, there's still the problem of limited revenue. Even for established publications, the number of possible advertisers shrinks considerably if they consider climate-friendly advertising only. In Sweden, for example, the daily newspaper Dagens ETC declared that it would not collaborate anymore with companies engaged in fossil energy investments.[16] On the other hand, a growing number of advertisers are looking specifically for a sustainability-friendly editorial environment, for greenwashing in the worst case, journalism with a green image may therefore attract advertising – and lose credibility by accepting the wrong kind of advertising.

Many online-born transformative media use a mix of different revenue sources. The German RiffReporter, founded in 2016 as a collective of freelance journalists, sell their stories on different topic-related channels ("corals") such as KlimaSocial. Readers pay for each single story, a thematic channel, or a whole month for all.[17] Another case is Plus One from Russia: "The financial model behind this medium is regular contributions from companies, which function not as an advertisement model, but more as a sponsor/grantee model" (Davydova 2020).

## Conclusion, research desiderata

To sum up, this chapter has identified the emergence of transformative journalisms, emerging new trends in journalism that converge around the notion that journalism can and should advocate sustainability through journalistic practice. We have introduced a framework of four dimensions that differentiate changes in discourses about journalism, structures of journalistic production, output, and interactions with audiences, sources, and funders. The multitude of new practices are in many ways rooted in traditional environmental journalism, but they aim to transform journalism across beats as much as transforming society across sectors.

As transformative journalisms include an element of advocacy, they also meet resistance from journalists adhering to the established model of objectivity. Yet, a closer look reveals that only some aspects of objectivity are being redefined while other core notions remain unchallenged. The first pillar of objectivity (following the framework of Westerstahl, above), *true and relevant* reporting, is not being challenged. Indeed, one may argue that ecological risks are more relevant than many other topics as they ultimately concern the well-being of everyone. Yet, the second pillar of objectivity is, indeed, challenged: transformative journalisms are *not neutral and not balanced* in the way of e.g., always including a voice challenging whether ecological threats exist or pointing out that jobs may be lost, etc. Transformative journalism may be *pluralistic* in representing different ideas on how we should deal with ecological threats, which solutions are best and about the advantages and disadvantages of

different measures and pathways – but it will start from the assumption that substantial changes are necessary. Impartiality is also challenged, but not in the way that transformative journalism takes sides for a group or party. It is not neutral as it is bound to a broad cause that transcends favoring certain actors or parties: protecting the environment. Brüggemann et al. (2020) call this "advocacy for public goods".

Yet, in the case of close and continuous cooperation with e.g., certain green NGOs, it may be that journalistic criticism will only hesitantly be addressed to the partner that the news outlet depends on for e.g., funding. Therefore, transformative journalism is also likely to have its blind spots – just as other types of journalism. Preserving professional autonomy remains a core challenge also for this kind of journalism. The value of fairness will also sometimes be difficult to uphold. Even corporate actors or representatives of interest groups opposed to far-reaching and fast transformations need to be treated with fairness, just as criticism should also be addressed to environmental movements where criticism seems to be appropriate. Practices of transformative journalisms are evolving between the poles of ecological advocacy and independent observation. Tensions are unavoidable and may also be productive for creating journalistic products adequate to the scale of ecological challenges. It is also important to note that for a healthy public sphere, the co-existence of different types of journalism is necessary – as well as critically analyzing even the kind of journalism that pursues the same aims as oneself as a politically engaged citizen and researcher.

Finally, the review has revealed a general lack of studies on these new developments in journalism. Particularly long-term and broader studies, but also in-depth qualitative studies are rare to respond to very basic questions concerning the greening of journalism: Is environmental journalism growing in terms of amounts of coverage and workforce? Does this apply to the specialized environment and science reporters or also across beats? Is support for ecological advocacy growing among environmental reporters and among journalists more broadly? How is journalistic production organized in the new niche providers of environmental journalism? How do publics react to journalism that openly champions a transformative mission? Are warnings about a loss of autonomy and journalistic integrity justified when looking at actual journalistic practices? Will transformative journalism itself be sustainable, thus able to re-connect to audiences and opening-up funding sources? Will it thus be a force of both transforming and re-inventing journalism? All of these questions seem fruitful points of departure for future research.

## Notes

1 https://www.riffreporter.de/de/ueber-riffreporter (23.04.2021)
2 https://uebermedien.de/52582/journalistinnen-nehmt-die-klimakrise-endlich-ernst/, translation: https://medium.com/@mail_30953/journalists-you-need-to-start-taking-the-climate-crisis-seriously-6658934eeb96 (23.04.2021)
3 https://www.journalist.de/startseite/detail/article/default-340ceb6a9a (23.04.2021)
4 https://daniel-bouhs.de/2018/11/21/von-wegen-klima-wissenschaftsjournalisten-wettern/ (23.04.2021)
5 https://www.theguardian.com/environment/2015/mar/16/everything-you-wanted-to-ask-about-the-guardians-climate-change-campaign (23.04.2021)
6 https://www.stern.de/panorama/von-der-stern-chefredaktion--darum-wollen-wir-ein-zeichen-setzen-9427858.html (23.04.2021)
7 https://www.spiegel.de/wissenschaft/mensch/neue-spiegel-rubrik-zur-klimakrise-projekt-zukunft-a-ee445cdc-4f1c-4992-8112-b6b5bf252b93 (23.04.2021)
8 URL: https://www.geo.de/natur/nachhaltigkeit/23972-rtkl-nachhaltigkeit-unser-weg-zum-klimaneutralen-magazin (18.04.2021)
9 https://coveringclimatenow.org/about/ (23.04.2021)

10  https://www.klimafakten.de/meldung/wo-steht-der-deutschsprachige-umwelt-und-klimajournalismus-ein-ueberblick (23.04.2021)
11  https://earthjournalism.net/who-we-are (25.4.2021)
12  https://www.theguardian.com/environment/2019/may/17/why-the-guardian-is-changing-the-language-it-uses-about-the-environment (23.04.2021)
13  https://taz.de/Neue-Empfehlungen-fuer-die-taz/!5708300/ (23.04.2021)
14  https://www.dn.se/sverige/greta-thunberg-will-be-editor-in-chief-of-leading-swedish-newspaper-for-one-day/ (23.04.2021)
15  https://www.stern.de/panorama/fridays-for-future-und-stern--wie-die-zusammenarbeit-entstand-9424280.html (23.04.2021)
16  https://www.theguardian.com/environment/2019/sep/26/swedish-newspaper-stops-taking-adverts-from-fossil-fuel-firms (23.04.2021)
17  https://www.riffreporter.de/de/magazine/klimaschutz-social (23.04.2021)

# Further reading

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# Covering the environment

News media, entertainment media and cultural
representations of the environment

# BIG DATA AND COMPUTATIONAL METHODS

## Methodological advances for analyzing mediated environmental communication

*Valerie Hase and Mike S. Schäfer*

### Introduction

Air and water pollution, acid rain, the hole in the ozone layer, or climate change are just some of the environmental issues that have been discussed around the world (Kirilenko & Stepchenkova, 2012; Schmidt et al., 2013; Vu et al., 2019). Mediated communication – i.e., communication via news media, websites, social media, or messenger services – is crucial for these discussions. Media provide information about environmental issues which are often hard to observe (like ocean acidification or anthropogenic climate change), change only slowly over longer periods of time (such as the ozone content of the stratosphere or the height of sea levels), are invisible in principle (such as $CO_2$ emissions or radioactivity), or have consequences which are difficult to assess (such as the loss of biodiversity). Media can also be a forum in which urgent environmental crises like oil spills are negotiated (Kleinnijenhuis et al., 2015) and where debates about partly controversial issues like climate change take place (Pearce et al., 2014).

In recent years, however, channels for mediated communication have diversified massively. Alongside legacy news media which have adapted their modes of production and distribution to the digital era (Friedman, 2015), online-born journalistic players such as *Buzzfeed* or the *Huffington Post* have entered the field, partly targeting young audiences with environmental topics (Painter et al., 2016). Meanwhile, social media platforms like Facebook or Twitter direct public attention in many countries (Newman et al., 2021) and newcomers like Instagram (Pearce et al., 2019) or TikTok have established new, visual formats of digital (environmental) communication.

Correspondingly, scholarship on mediated environmental communication across channels has grown considerably (Schäfer & Schlichting, 2014; Comfort & Park, 2018). Many of the respective studies, particularly more recent ones, have been taking advantage of methodological advances in the field, especially big data and computational methods, which has established a line of research called Computational Social Science (CSS).

Social scientists often use the term *big data* to describe unstructured datasets which are retrieved, structured, analyzed and thus given meaning by means of computational methods. Big data can (but do not have to) comprehend many observations or variables

*Table 15.1* Big Data and Computational Methods for Analyzing Mediated Environmental Communication

|  | *Stakeholder Communication* | *Journalists and Intermediaries* | *Interpersonal Communication* |
|---|---|---|---|
| *Access to Big Data* | | | |
| Accessing big data | APIs, use of databases, crawling & scraping | | |
| Types of data | Social media content, transcripts of hearings, press releases | Newspaper articles, broadcasting transcripts | Search trends, social media content, digital traces from web tracking |
| *Analyses with Computational Methods* | | | |
| Key methods | Automated content analysis (dictionaries, co-occurrence analysis, machine learning) | | |
| | Network analysis (hyperlink network analysis, community detection) | | |
| Key variables | Salience (*How much is the environment talked about?*) | | |
| | Actors and communities *(Who is talking about the environment?)* | | |
| | Positioning & Framing *(How is the environment talked about?)* | | |

(boyd & Crawford, 2012; Mahrt & Scharkow, 2013). More indicative of such data are high levels of granularity, for example, real-time observations or information on relations between units (Kitchin, 2013).

While boundaries between computational and traditional methods are fuzzy (van Atteveldt & Peng, 2018), *computational methods* are often understood as (semi)-automated methods that are based on algorithmic solutions, including automated content analysis, network analysis, or simulations. These methods are not entirely new, but their applicability and development have sharply increased given the exponential rise in computational power available to researchers.

The review at hand summarizes characteristics, opportunities, and limitations of big data and computational methods in the context of mediated environmental communication. It focuses on two aspects in particular (see Table 15.1): *access to big data*, i.e., how researchers can retrieve relevant data and what types of data are typical in analyses of mediated environmental communication, and *analyses with computational methods*, i.e., how and when researchers should take advantage of methods such as automated content analysis and network analysis.[1]

Both aspects are discussed for what are arguably the three most important strands of research on mediated environmental communication: first, stakeholder communication as (often strategic) communication of (often organizational) stakeholders affected by or concerned about environmental issues; second, communication by journalists and other communication intermediaries like social media influencers; third, interpersonal communication about environmental issues.

## Data access: how do I get big data?

### *Accessing big data*

To discuss opportunities and limitations, we first turn to typical ways of accessing big data.

### *Application programming interfaces (APIs)*

*APIs* are structured interfaces to computer programs that allow researchers to retrieve data based on software scripts. For instance, researchers often write queries in programming languages such as R or Python to access content from social media platforms, especially Twitter, via the platform's API (Lomborg & Bechmann, 2014). In studies on mediated environmental communication, these APIs are often used to gather data on interpersonal communication, for example by collecting tweets including the search terms "climate change" or "global warming" (Leas et al., 2016). In addition, news outlets such as *The Guardian* or *The New York Times* also provide access to journalistic communication via APIs. However, several aspects limit the accessibility of APIs, as both Lomborg and Bechmann (2014) and Perriam et al. (2020) critically reflect: Privacy concerns often restrict which data can be retrieved. Especially interpersonal communication, for example personal messages, is mostly not accessible this way. In recent years, social media platforms also shut down or severely restricted access to their APIs, with Twitter being one of the few exceptions. In addition, APIs are limited in terms of the number of queries that can be sent in a given time frame and access to APIs sometimes bound to institutional agreements (Puschmann, 2019).

### *Use of databases*

*Databases* describe web archives from which content can be retrieved through (manual or automated) search queries using Boolean search terms, for example "climate OR environment". Many studies download media coverage from databases such as Nexis Uni or Factiva (Barkemeyer et al., 2017), the less often used Europe Media Monitor (Pianta & Sisco, 2020), or other sources. These databases mostly offer access to newspaper articles and, to a lesser extent, transcripts of broadcasting programs. Therefore, analyses of journalistic communication about, for example, oil spills (Kleinnijenhuis et al., 2015) or air pollution (Olofsson et al., 2018) mostly focus on newspapers. Texts can often be downloaded as ".txt" or "pdf" files. Using software scripts, both the main text as well as relevant meta data such as an article's publication date and time can then be extracted to create structured datasets. Similarly, databases containing transcripts of congressional hearings or other administrative documents are used to analyze stakeholder communication (Liu et al., 2011). However, the accessibility of these databases is limited: Many archives prohibit users to access content automatically, meaning content must be downloaded manually. In addition, web archives often suffer from missing or duplicate data (Deacon, 2007), with "digital born" outlets in particular not being included.

### *Crawling and scraping*

*Crawling* describes the use of software tools that start from a given set of websites and collect hyperlinks pointing to other websites, thus creating an ensemble of sources. *Scraping* indicates the automated extraction of content from fetched websites. By relying on HTML code as one of the standard markup languages for websites, scrapers are often able to pull specific content from websites. A study by Adam et al. (2020), for example, starts with a set of important climate skeptics. By crawling their websites, they identify other actors via snowball sampling, thus automatically extending their original sample. Farrell (2016) first identifies websites of actors in the climate change counter-movement to then scrape more than 40,000 documents from their online domains (see similarly Boussalis & Coan, 2016). Again, access

to this data comes with limitations, for instance, the need for substantial programming skills. In addition, crawling/scraping may violate the terms and conditions of websites or respective national regulations. Its use should therefore be considered with caution (Truyens & van Eecke, 2014).

## *Types of data*

To understand the role of big data in analyses of mediated environmental communication, researchers also need to consider common types of data.

### *Stakeholder communication*

Studies analyzing *stakeholder communication* often analyze *transcripts of congressional hearings* or similar events. For example, Hartwig et al. (2015) use proceedings from political meetings in Germany and Japan to identify networks involved in the renewable energy feed-in tariff system. Venturini et al. (2014) create a corpus containing information on international climate negotiations. Studies also use *policy reports, blog posts,* or *press releases* published by NGOs or other organizations. For example, Kleinnijenhuis et al. (2015) retrieve press releases from the BP to understand how the organization set the agenda in the 2010 oil spill crisis. Boussalis and Coan (2016) retrieve documents such as policy reports or blog entries from conservative think tanks in the US to understand how these organizations foster doubt about climate change. Another type of data is *social media content* which is often used to analyze how actors, including stakeholders, communicate about air pollution (Chen et al., 2017), climate change negotiations (Hopke & Hestres, 2018), or environmental disasters (Takahashi et al., 2015).

### *Journalists and intermediaries*

Studies concerned with how *journalists or intermediaries* communicate mostly consider *newspaper articles* as these are often readily available over long periods of time and for different countries. For example, Barkemeyer et al. (2017) retrieve coverage concerned with climate change for 113 newspapers across 41 countries, similar to other studies on coverage of climate change (Hase et al., forthcoming), air pollution (Olofsson et al., 2018), or environmental crises (Kleinnijenhuis et al., 2015). Fewer studies deal with *transcripts of broadcasting programs* – as one of the few, Merkley and Stecula (2018) analyze content by US broadcasting stations to understand polarization in terms of climate change. *"Digital born" players*, which are of increasing importance for environmental communication (Painter et al., 2016), are almost never analyzed, presumably because they are often not listed in existing databases. Similarly, *blog posts* (Schmid-Petri et al., 2020) or *social media content* from news organizations (Hopke & Hestres, 2018) are considered less frequently.

### *Interpersonal communication*

Access to and analyses of *interpersonal communication* are far more limited. Researchers cannot retrieve phone calls, messages, or emails, as privacy concerns necessarily restrict access. Thus, interpersonal communication is mainly considered by analyzing public *social media content*, predominantly from Twitter. Studies for example analyze how the public responds to and discusses climate change (Pearce et al., 2014) or natural disasters (Takahashi et al., 2015)

on the platform. Some studies also analyze *online comments* (Collins & Nerlich, 2015). Fewer studies consider individual searches for information using *Google Search trends*, for example, to measure awareness of environmental disasters (Kleinnijenhuis et al., 2015). As an exception, Yan et al. (2021) analyze interpersonal communication through *digital traces from web tracking*. They incentivize individuals to install tools that track online activities, for example which websites related to climate change people visit.

## Computational methods: key methods and variables

In studies on mediated environmental communication, two computational methods are deemed especially important: automated content analysis (Metag, 2016; Grundmann, 2021) and network analysis (Anderson, 2015).

### *Key methods*

*Automated content analysis* describes the (semi-)automated analysis of content, mostly written text.[2] The method measures manifest textual indicators, for example, the frequency of words, to infer latent constructs, for example, frames. Frequently employed approaches include dictionaries (i.e., lists of words[3] that are searched for automatically), co-occurrence analysis (i.e., the analysis of words that often occur together), supervised machine learning (i.e., the classification of texts in predefined categories), or unsupervised machine learning (i.e., the classification of texts in previously unknown categories which are derived inductively) (Benoit, 2020; Hase, in press).

*Network analysis* describes the analysis and visualization of ties (i.e., relationships) between nodes (i.e., entities) that form networks (Borgatti et al., 2009). Researchers interested in mediated environmental communication often use a specific form of network analysis called hyperlink network analysis (Park, 2003). Using crawling and scraping, they automatically retrieve the content of websites, including hyperlinks. Studies then identify networks that consist of websites or entities behind them as nodes and hyperlinks as ties between them. Often, studies identify communities within networks, i.e., groups where "connections between the nodes are denser than connections with the rest of the network" (Radicchi et al., 2004, p. 2658). In short, these are assumed to describe more homogenous groups within networks – for example communities with different stances on nuclear energy (Arlt et al., 2019) as well as climate change (Pearce et al., 2014) or transnational public spheres concerning air pollution (Chen et al., 2017).

### *Key variables*

Studies that rely on computational methods often focus on the salience of environmental issues, the identification of actors and communities, as well as positioning and framing.

### *Salience: how much is the environment talked about?*

Studies often shed light on *issue attention*, i.e., how many congressional hearings by politicians (Liu et al., 2011), newspaper articles by journalists (Schmidt et al., 2013; Grundmann & Scott, 2014; Barkemeyer et al., 2017), or tweets (Kirilenko & Stepchenkova, 2014; Leas et al., 2016) discuss issues such as climate change. In addition, studies increasingly use computational methods to identify and inspect the *salience of specific topics or themes*. Researchers for

example use unsupervised machine learning to identify latent topics based on word occur-rences and cluster them to broader themes, such as climate science or climate politics (Keller et al., 2020, see similarly Bohr, 2020). Against the backdrop of more data across years and time, studies also try to explain *temporal or spatial patterns* in communication. For instance, studies capture issue attention to climate change repeatedly over time and across different countries (Hase et al., forthcoming). They then model and statistically assess how tem-perature changes (Pianta & Sisco, 2020), events such as the publication of the IPCC report (Schäfer et al., 2014; Wozniak et al., 2021), or country-level characteristics such as national emissions (Schmidt et al., 2013; Barkemeyer et al., 2017; Vu et al., 2019) influence the sa-lience of communication about the environment or certain environmental topics. Conse-quently, these studies have introduced advanced statistical approaches such as time-series or multi-level modeling to the field.

### Actors and communities: who talks about the environment?

Computational methods are also used for the *identification of actors or communities* concerned with the environment. For example, Adam et al. (2020) analyze websites of civil society actors of the climate skeptical counter-movement as a starting point. Next, they apply hy-perlink network analysis to identify additional actors connected to the movement. Other studies follow a similar approach – mostly concerning climate change (Farrell, 2016; Pearce et al., 2019) but also discussions about air pollution (Chen et al., 2017). Apart from the iden-tification of actors or communities of interest, such analyses also enable researchers to inspect how specific groups talk about environmental issues or how much they succeed in setting the agenda concerning environmental issues (Farrell, 2016; Adam et al., 2020). Thus, research-ers may better understand how (online) movements concerned with the environment work and how they could be approached – for example in terms of reaching climate sceptics. In addition, studies use computational methods to measure the *prevalence of actors or sources*. For example, Grundmann and Scott (2014) use dictionaries to identify actors mentioned in news about climate change and, thus, "who speaks for climate" (p. 226, see similarly Adam et al., 2020). Kirilenko and Stepchenkova (2014) automatically retrieve the sources users mention when tweeting about climate change to analyze whether they refer to news outlets, NGOs, or scientific domains.

### Positioning and framing: how is the environment talked about?

Lastly, studies use computational methods to analyze positioning or framing in mediated environmental communication, for example the use of *labels*. As one of the earliest studies, Koteyko et al. (2010) measure how news media talk about carbon by identifying multi-word expressions, specifically whether journalists used terms such as "carbon footprint" or "carbon markets". Similar studies analyze the use of labels to describe climate change (Grundmann & Scott, 2014) or fracking (Mattfeldt, 2021), with analyses of co-occurrences illustrating how environmental issues are labeled. Other studies use computational methods to identify *eval-uations*. For example, Adam et al. (2020) use supervised machine learning to classify text as, for example, advocate-leaning or skeptical-leaning concerning climate change. Chinn et al. (2020) use an unsupervised machine learning approach to estimate partisan positions in coverage about climate change and thus identify political bias. Lastly, automated approaches have also gained recognition when analyzing *frames* as studies have used both unsupervised (Vu et al., 2019; Adam et al., 2020) and supervised machine learning (Su & Hu, 2021) to

analyze the prevalence of frames, mostly in journalistic communication. To date, however, it is unclear how valid especially unsupervised approaches are for capturing these latent constructs (Nicholls & Culpepper, 2021).

## Opportunities and limitations

Having outlined characteristics of big data and computational methods, we will now discuss specific opportunities and limitations going along with them.

### Opportunity: access more and different data

Computational methods are of immense value for the retrieval of more and different data on mediated environmental communication. Many datasets can only or much more easily be accessed when relying on computational methods as studies using hyperlink network analysis (Adam et al., 2020) or retrieving data via APIs (Pearce et al., 2014) have shown. In addition, the emergence of big data in the form of digital traces opens up new avenues of research, especially concerning interpersonal communication. First studies using web tracking to analyze how lay people access information about climate change (Yan et al., 2021) are thus promising for better understanding how people get information and communicate about environmental issues. By doing so, studies are also able to better account for an increasingly fragmented ecosystem and, correspondingly, to outline "how to communicate in a much more diverse and fragmented media landscape and in highly polarized environments" (Moser, 2016, p. 361).

### Opportunity: structure and sample data

In addition, computational methods help to transform big data into a structured form, including (dis-)aggregation across time and space. As one such example, Kirilenko and Stepchenkova (2014) use metadata of social media posts, specifically the geolocation of users as well as time stamps, to analyze spatial and temporal distributions of communication about climate change. Computational methods can also support researchers when it comes to sampling: Many studies for example retrieve articles covering climate change based on the sole occurrence of keywords such as "climate change". However, as Kirilenko and Stepchenkova (2012) point out, this may lead to a high rate of false positives in samples, meaning that a corpus includes too many articles mentioning climate change only in passing (see similarly Grundmann, 2021). Here, computational methods can reduce measurement error: Wozniak et al. (2021) for instance use machine learning to identify only those articles mentioning climate change or related terms that actually deal with the issue.

### Opportunity: analyze communication across time and space

Computational methods enable researchers to scale up their analyses, for example by considering communication across decades (Chinn et al., 2020), which brings about change in terms of longitudinal studies (Hansen, 2015) or including large(r) number of countries (Barkemeyer et al., 2017; Vu et al., 2019; Hase et al., forthcoming). To some extent, this also allows researchers to broaden their perspective beyond the Western-centric bias in most studies (Schäfer & Schlichting, 2014), as automated analyses are increasingly able to handle multi-lingual content (Reber, 2019). For example, Pianta and Sisco (2020) analyze issue attention by retrieving articles published in 22 different languages.

### Limitation: computational approaches cannot (yet) grasp complex constructs

One of the clearest takeaways for readers should be that big data and computational methods are limited in that they are not (yet) able to analyze communication as in-depth as can be done with manually curated datasets or traditional methods, for example, manual content analysis. For instance, while some studies analyze frames automatically, it is unclear whether computational methods can or should be employed to do so (Metag, 2016; Nicholls & Culpepper, 2021, see for a similar discussion Grundmann, 2021). In addition, most studies still focus on the written text as their unit of analysis although visual environmental communication is equally important and has, in fact, been neglected for too long (Hansen, 2015). Similarly, inferring meaningful relationships between actors and detecting communities based on hyperlink network analysis will only be useful to some researchers while others may be interested in other, potentially more substantial forms of (communicative) relationships. As Grundmann and Scott (2014, p. 233) point out: "We have to be careful not to over-interpret our findings": Researchers should carefully consider for which steps – data retrieval, sampling, structuring datasets, or data analysis – big data and computational methods are a good choice and when other types of data or methods are, in fact, called for.

### Limitation: reliance on convenience samples

Big data is often inherently biased given that such datasets are "based on nonrandom sampling, such as using snowball techniques or simply by using any data that is technically and legally accessible" (Mahrt & Scharkow, 2013, p. 25). As such, related datasets can often not be considered representative (Ruths & Pfeffer, 2014) and do not allow for generalizable conclusions about one's target population.[4] For instance, many studies on individual communication analyze Twitter posts (Pearce et al., 2019), presumably because the platform is among the few still offering access. However, Boyd and Crawford (2012, p. 669) underline that "Twitter does not represent 'all people'" (for a similar discussion, see Pearce et al., 2019). While studies in this line of research often mention that their sample might be biased, the sheer frequency of studies on Twitter compared to other platforms is somewhat troublesome. It stands to doubt that by considering "the number of tweets discussing climate change at any particular moment as a proxy for climate change discourse among the general public" (Kirilenko et al., 2015, p. 94), we can, in fact, draw inferences about the latter. Issues in terms of sampling bias and a lack of representativeness extend beyond studies on interpersonal communication: Analyses of journalistic communication mostly consider legacy media, in particular newspapers, as such data are more easily accessible via existing databases. Other channels, for example "online born" outlets or broadcasting, as well as other types of content, such as images or videos, are largely neglected – a common problem in studies on mediated environmental communication (Schäfer & Schlichting, 2014; Pearce et al., 2019) which will be reinforced rather than solved with the arrival of big data and computational methods.

### Conclusion and recommendations for the way ahead

Given the rise of CSS, big data and computational methods offer considerable opportunities for analyses of mediated environmental communication: from access to more and different data over support for better structuring or sampling data to opportunities for analyses across time and space. However, important caveats – e.g., the complexity of variables that can

*Table 15.2* A Guide for Using Big Data and Computational Methods

| | |
|---|---|
| Opportunities and Limitations | |
| Advances | • Allow to access more and different data<br>• Allow to structure and sample data<br>• Allow to analyze communication across time & space |
| Limitations | • Are limited in terms of the level of complexity they can grasp<br>• Are limited in terms of the kind of data that can be analyzed |
| Recommendations | |
| Choosing an approach | • Formulate your research question first. Consider whether big data or computational methods are the right choice to answer your question:<br><br>   ◦ Does the use of big data allow inferences about your target population?<br>   ◦ Are computational methods able to measure key variables and infer latent (theoretical) constructs of interest? |
| Conducting an analysis | • Comply with legal and ethical guidelines.<br>• Avoid "black box" commercial tools.<br>• Validate your results.<br>• Make your approach and its limitations transparent; share code. |

be measured or the relevance and representativeness of data that can be analyzed – should be kept in mind. For researchers interested in using big data and computational methods, Table 15.2 summarizes not only opportunities and limitations, but also offers some recommendations to remedy existing issues.

First and foremost, researchers should specify their research question and *then* decide whether the use of big data or computational methods seems like a suitable approach. The fact that these methodological advances are often considered "innovative" does not mean that they are necessarily better suited to answer one's research question. In particular, whether or not researchers should rely on big data depends on the target population for which inferences should be drawn. If one's goal is to know how citizens are getting information about the environment, a survey might in many cases be more suitable than retrieving tweets containing the keyword "environment". In case of rapidly emerging events, for example, environmental disasters, on the other hand, relying on social media content may be the only and thus an appropriate choice. In addition, computational methods are often not suited to analyze communication with the necessary depth. While many variables can easily be analyzed automatically, as Grundmann and Scott (2014) show, less tangible and theoretically more complex constructs such as frames may be better measured using quantitative or qualitative manual coding.

If researchers do decide to rely on big data and computational methods, four additional recommendations should be kept in mind.

1 *Comply with legal and ethical guidelines.* Some forms of data retrieval, such as crawling/scraping websites or automatically accessing databases like Nexis Uni, are prohibited by law (Truyens & van Eecke, 2014). Apart from legal restrictions, researchers should be aware of ethical considerations, for example in how far the retrieval of interpersonal communication may violate the privacy of the general public.

2 *Avoid "black box" commercial tools.* Avoid ready-made commercial "black box" tools where it is unclear how data is retrieved or how methods are applied. Many commercial companies offer to retrieve datasets for researchers or advertise comparably easy software

tools, for example for text mining. While learning programming with R or Python is hard and takes time, it reassures that researchers know their data and their analysis by heart. Especially in times where open science is becoming increasingly important, avoiding the outsourcing of sampling or the analysis itself is a way to reassure the validity and reproducibility of one's results.

3   *Validate your results.* The third recommendation is to reassure the validity of results, i.e., "whether the research instrument actually measures the construct it is supposed to measure" (Metag, 2016, no page). For automated content analysis, one could do this by comparing automatically generated results to manual coding of the same data (Benoit, 2020; Hase, in press). For network analysis, researchers should consider whether links between entities are indeed "representative of deeper meaning" (Howison et al., 2011, p. 787) – meaning that they should reassure that the occurrence of hyperlinks between, for example, climate skeptics, is enough to draw valid inferences about their relationship.

4   *Make your approach and its limitations transparent; share your code.* Overall, research using big data and computational methods is in flux. Not all of the aforementioned limitations can – as of yet – be dissolved. Access to big data is being renegotiated, for example through initiatives such as Social Science One where researchers aim to foster collaborations with social media platforms like Facebook (Puschmann, 2019). Similarly, computational models are constantly developed to better grasp complex variables. As such, the field will evolve further and with growing speed. In light of this, it is even more important that researchers make transparent how exactly they conducted their analysis and limitations going along with such. An even better approach is to share programming code, as for instance Adam et al. (2020) do.

In conclusion, it may be worthwhile to follow Mah (2017) who proposes a slow approach to big data and related methods, which "would involve taking pause before embracing big data, examining its vested interests, loaded associations, and limitations" (p. 130) – something also coined "tool criticism" related to the computational turn in many social sciences (van Es et al., 2021). Lastly, researchers should not ignore that the collection, storage, and analysis of "big data" alongside the rise of CSS uses up computational power and may therefore negatively impact the very object of their research: the environment (Lucivero, 2020).

## Notes

1   While computational methods include more methods, this review focuses on these two approaches that are most commonly applied in research on mediated environmental communication.
2   Most studies in the field of mediated environmental communication focus on the analysis of written text although methodological approaches for automated analyses of images or spoken language do exist.
3   While, for simplicity, we focus on words as the most common unit of analysis, automated content analysis is usually concerned with "features", which may also include numbers, punctuations, etc.
4   This problem is not limited to big data analyses. The point, however, is that by having "more data" we often do better data, as Boyd and Crawford (2012) argue.

## Further reading

Benoit, K. (2020). Text as data: An overview. In L. Curini & R. Franzese (Eds.), *The SAGE Handbook of research methods in political science and international relations* (pp. 461–497). SAGE Publications Ltd. https://doi.org/10.4135/9781526486387.n29
Benoit (2020) delivers a comprehensive overview of methods related to automated content analysis. The overview is especially well suited for readers with little experience in "text as data" approaches.

boyd, D., & Crawford, K. (2012). Critical questions for big data. *Information, Communication & Society*, *15*(5), 662–679. https://doi.org/10.1080/1369118X.2012.678878

Boyd and Crawford (2021) introduce readers to common understanding(s) and misunderstanding(s) of big data. By critically reflecting on limitations of such datasets, they take a critical perspective on big data.

Adam, S., Reber, U., Häussler, T., & Schmid-Petri, H. (2020). How climate change skeptics (try to) spread their ideas: Using computational methods to assess the resonance among skeptics' and legacy media. *PloS One*, Article e0240089. https://doi.org/10.1371/journal.pone.0240089

The study by Adam et al. (2020) offers an excellent example of how to apply different computational methods for studying mediated environmental communication – including an open science approach in terms of providing data and code for their analysis.

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# 16

# COMMUNICATING CLIMATE CHANGE IN THE ANTHROPOCENE

## The dynamic cultural politics of climate change news coverage and social media around the world

*Michael K. Goodman, Marisa B. McNatt and Maxwell T. Boykoff*

### Introduction

Since the publication of the first edition of the *Routledge Handbook of Environment and Communication* in 2015, the world's coverage of climate change—both in terms of frequency and content—has changed substantially. The first iteration of this chapter detailed the decline of legacy media coverage of climate change in the years leading up to 2014, in tandem with digital and social media coverage beginning to step into these climate media spaces. Initially focusing on United States (US) coverage, we argued that this decline was "due largely to political economic trends of shrinking newsrooms and fewer specialist reporters covering climate stories with the same frequency as before" (Boykoff et al. 2015: 221). As we stated at the time,

> while [these trends provide] a worrisome glimpse into the contentious and high-stakes arena of global reporting on climate change in the twenty-first century, what it shows more generally is the way that environmental communication in the context of climate politics is thoroughly enmeshed in a combination of large-scale social, political and economic factors connected up with smaller-scale power-laden editorial decision making, steeped in cultural economy and ideology.
>
> *(p. 222)*

Yet one look at Figure 16.1, which now includes newspaper coverage of climate change up to 2021 at the global level, suggests that circumstances have changed. In short, there has been a relatively sustained rise in coverage between 2014 and 2021 in world coverage and in US newspapers in particular barring the large dip in coverage due to the finite "news hole" of media attention focused on the COVID-19 pandemic (Figure 16.2).

Amid newsrooms continuing to shrink or compress in many places (with some exceptions like the *Guardian* and *New York Times*), changing coverage can be attributed to several shifts in the media landscape. First, many stories about climate change or global warming increasingly
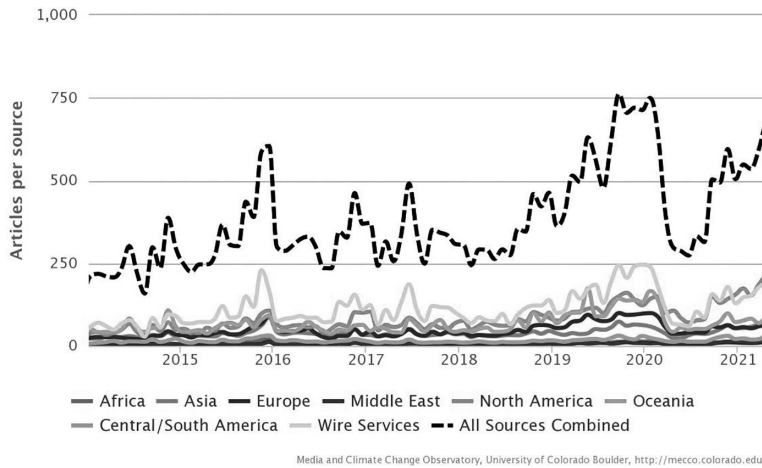
*Figure 16.1*   January 2014 to April 2021 World Newspaper Coverage of Climate Change or Global Warming

*Source*: Boykoff, M., Aoyagi, M., Ballantyne, A. G., Benham, A., Chandler, P., Daly, M., Doi, K., Fernández-Reyes, R., Hawley, E., McAllister, L., McNatt, M., Mocatta, G., Nacu-Schmidt, A., Oonk, D., Osborne-Gowey, J., Pearman, O., Petersen, L. K., Simonsen, A. H., and Ytterstad, A. (2021). World Newspaper Coverage of Climate Change or Global Warming, 2004–2021. Media and Climate Change Observatory Data Sets. Cooperative Institute for Research in Environmental Sciences, University of Colorado. doi.org/10.25810/4c3b-b819 https://sciencepolicy.colorado.edu/icecaps/research/media_coverage/world/index.html.
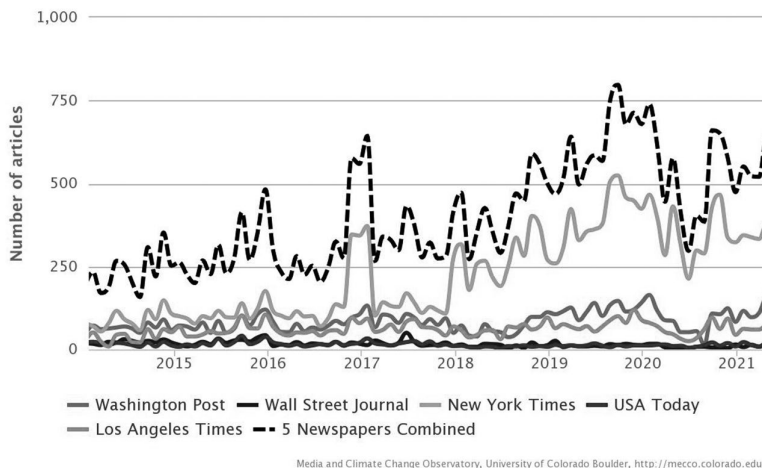


*Figure 16.2*   January 2014 to April 2021 United States Newspaper Coverage of Climate Change or Global Warming

*Source*: Boykoff, M., Daly, M., McNatt, and Nacu-Schmidt, A. (2021). United States Newspaper Coverage of Climate Change or Global Warming, 2000–2021. Media and Climate Change Observatory Data Sets. Cooperative Institute for Research in Environmental Sciences, University of Colorado. doi.org/10.25810/jck1-hf50 https://sciencepolicy.colorado.edu/icecaps/research/media_coverage/usa/index.html.

populate pages *throughout* newspapers—from international or business sections to culture and sports stories—rather than being only covered in science or environment sections as in the past. Second, more reporting and coverage resulted from the growing awareness of the "intersectional" nature of the challenges surrounding climate change. In other words, news accounts have increasingly moved from coverage of climate change or global warming as a single issue to many interrelated and interlocking challenges that thread throughout all aspects of everyday lives and livelihoods. Third, given these two conditions, more leaders—be they policy decision-makers or cultural figures—have spoken out about and acted on climate-related concerns garnering more coverage of these articulations and engagements. Fourth, global climate impacts and connections to other extreme events increasingly attributed to climate change have intensified media portrayals of climate challenges. Thus, although this is not an exhaustive list of key factors, resulting patterns of media representations—increasing in both quantity and quality—have illustrated that media have progressively had a hard time to *not* find and portray connections with a changing climate in the 21st century.

At this same time, the coverage, analysis and discussion of climate change have shifted significantly into digital spaces. Since 2014, there has been a rise and further entrenchment of digital news media sources, a deepening and broadening of climate change conversations on social media, and the rise of key climate change voices in younger generations (e.g. Greta Thunberg), many of whom are digital media "originalists" (Goodman and Jaworska 2020).

This chapter builds on our initial exploration of global climate change coverage and also focuses on key questions that arise in light of the growing coverage of climate change from our previous writing on this topic in 2014. Since then, coverage across social and digital media representation has become a burgeoning space that has significantly shaped public awareness and engagement with climate change.

## While some media conditions change, others have stayed the same

Most citizens around the world typically do not read peer-reviewed literature. Instead, to learn about climate change, people in the public arena turn to media communications—television, newspapers, radio, new and social media—to link formal science and policy with their everyday lives. Over the past several decades, the dynamics of science and politics have clearly shaped media coverage of climate change. Yet, it is also worth noting and considering how "news"—generated by mass media—has, in turn, shaped ongoing scientific and political considerations, deliberations and decisions. In other words, it is instructive to account for how mass media have influenced who has a say, when and how in the public arena.

"The media" around the world are actually much more heterogeneous and varied than at first glance. In their multiple dimensions, media are constituted by many institutions, processes and practices that together serve as "mediating" forces between communities such as science, policy and civil society. Media segments, articles, clips and pieces represent critical links between people's everyday realities and experiences and the ways in which these are discussed at a distance between science, policy and public actors. People throughout society rely upon media representations to help interpret and make sense of the many complexities relating to climate science and governance. Thus, media messages are critical inputs to what becomes public discourse on current climate challenges.

Yet, these media representations enter into an individual's pre-existing perceptions and perspectives and are taken up or resisted in varied ways (Bolsen and Shapiro 2017). For example, Dan Kahan (2013) has found that subtleties in messaging can activate strong ego-defensive attitudes as well as produce ineffective or even counter-productive results. Indeed,

as Lorraine Whitmarsh (2011) put it in summarizing her research on climate contrarianism "attitudes to climate change are relatively entrenched and … information about the issue will be evaluated and used in diverse ways according to individuals' values and worldviews." She concludes in a statement prescient of how some have similarly engaged with information about Covid-19 (e.g. Shephard et al. 2020; Deane et al. 2021):

> [S]imply providing climate change information is unlikely to be successful, as new in-formation is often interpreted by people in line with their existing attitudes and worl-dviews … In other words, irrespective of how much information is provided, it is remarkably difficult to change attitudes that have become entrenched.
>
> *(Whitmarsh 2011: 698)*

Together, media representations play distinct roles in shaping politically-, culturally-, environmentally- and socially-infused attitudes and behaviors (Gavin 2018).

These dynamic science–policy–media–public interactions have been spaces where claims-makers in the media have been changing (e.g. Baum and Groeling 2008; Fahy and Nisbet 2011), and traditional media outlets have faced newfound challenges (Siles and Boczkowski 2012; Boykoff and Yulsman 2013) while shifts to new and social media tools have recalibrated who has a say and how these claims circulate (Baek et al. 2012; Cacciatore et al. 2012; Graham et al. 2013). Traditional and legacy media organizations themselves have worked to adapt to these changing conditions and researchers have increasingly sought to make sense of the shifts (e.g. Nielsen 2012; Horan 2013; Zhu and Dukes 2013) and their implications (e.g. Jacobson 2012) in various cultural, political, social and environmental contexts (e.g. Adams and Gwynnald 2013; Schuurman 2013).

In recent decades, there has been significant expansion from traditional mass media into consumption of digital and social media. Essentially, in tandem with technological advances, this expansion in communications is seen to be a fundamental shift from broadcast, or "one-to-many" (often one-way) communications to "many-to-many" more interactive webs of communications (van Dijk 2006; O'Neill and Boykoff 2010). This movement has signaled substantive changes in how people access and interact with information about climate change and, who can create "share-able" digital content and, importantly, who has access to this information, content and material.

As we have noted, traditional/legacy and digital/social media spaces together comprise a key part of what many refer to as the "cultural politics of climate change": dynamic and contested spaces where various actors, institutions and governments battle to shape public un-derstanding and engagement (e.g. Boykoff and Goodman 2009; Goodman et al. 2020). These are places where formal climate science, policy and politics operate at multiple scales, through multiple media forms and are dynamic as well as contested processes that shape how mean-ing is constructed and negotiated. In these spaces of the "everyday," cultural politics involve not only the discourses that gain traction in wider discourses, but also those that are absent (Derrida 1978). Contemplating climate considerations in this way helps to examine "how social and political framings are woven into both the formulation of scientific explanations of environmental problems, and the solutions proposed to reduce them" (Forsyth 2003: 1).

## Ongoing media attention in the public sphere

Figure 16.1 shows the trends in media coverage of climate change from 2014 into 2021 in 100 newspapers in 54 countries across the globe. Figure 16.2 focuses specifically on

coverage in five US newspapers over this same time period. This visual representation provides an opportunity to assess and analyze further questions of how and why apparent ebbs and flows emerged in coverage. For instance, according to the annual summaries of coverage at the Media and Climate Change Observatory (MeCCO),[1] the increase in global coverage in late 2015 was attributed in large part to the US and international political and economic activities and impacts emanating from the 2015 Paris Agreement, discussed and decided on in early December of that year. In 2016, the highly consequential US Presidential election of Donald J. Trump in November of that year motivated many US newspaper outlets to write stories of the impending impacts of his presidency on international as well as US-based policy engagements with climate and environment challenges. As such, US media attention in mid-2017 was often linked to Trump's withdrawal from the 2015 UN Paris Climate Agreement and the US move to isolation through the G7 summit a few weeks later. US climate change coverage also rose with the inauguration of Trump and the impending sense of doom surrounding this and the Trump administration's general approach to environmental issues. 2018 saw in uptick in coverage in October of that year given the attention paid to the UN's IPCC Special Report on the impacts of 1.5C warming as well as coverage of Hurricane Michael landing in Florida, Typhoon Yutu in the Mariana Islands and the continued clean-up efforts from Typhoon Mangkhut in the Philippines and Hurricane Florence in the Carolinas. This year was also defined by the "Trump Dump" in US coverage: news media's focus on Trump-related stories lessened and/or pushed out news stories about climate change, to the detriment of the coverage of all other issues on climate-related topics or events. While news coverage of climate change in the US was not solely driven by US President Trump's rollbacks or negligence in regard to climate and environment policies, his imprint was clearly detected in media coverage of climate change or global warming during those years. For example, throughout the year 2017, in terms of the frequency of words in articles in the US, "Trump" was invoked 19,184 times through 4,117 stories in *The Washington Post*, *The Wall Street Journal*, *The New York Times*, *USA Today*, and the *Los Angeles Times* in 2017 (a ratio of nearly 4.7 times per article on average). Figure 16.3 depicts word frequencies in US press accounts across the calendar year 2017 (Boykoff et al. 2018).

2019 begins a steady rise in coverage across both the world and the US. Global peak coverage begins and is then sustained starting in September 2019, with overall coverage jumping 73% from 2018, with many newspapers throughout the world reaching the highest levels of coverage they have ever had in the context of climate change coverage. In a finite "news hole," climate change and global warming garnered coverage through stories manifesting in primary, yet often intersecting, political, economic, scientific, cultural as well as ecological and meteorological themes. Sub-Saharan African drought, Central American migration pressures, South American deforestation, Asian public health concerns, European decarbonization, UN climate talks, Australian bushfires, Canadian Federal Elections, US withdrawal from the Paris Climate Agreement and global youth-led climate social movements punctuated the 2019 media and climate change landscape and lofted coverage into unseen territories. Climate impacts—from the Amazon forest to the Zambezi River—grabbed media attention across the year. In addition, important personalities like Trump, Jacinda, Jair, Thunberg and Narendra contributed "discernible human influences" on media coverage of climate change throughout 2019. In the US, while the "Trump Dump" effect was still discernible, notably tampering down the overall number of articles on climate change relative to past coverage, there was still a relative uptick in coverage about climate-related topics over the year.

*Figure 16.3*   This Word Cloud Shows the Frequency of Words (4 letters or more) Invoked in Media Coverage of Climate Change or Global Warming in in the Los Angeles Times, The New York Times, USA Today, The Washington Post, and The Wall Street Journal in the US in 2017

*Source*: Boykoff, M., Andrews, K., Daly, M., Katzung, J., Luedecke, G., Maldonado, C. and Nacu-Schmidt, A. (2018). A Review of Media Coverage of Climate Change and Global Warming in 2017, Media and Climate Change Observatory, Cooperative Institute for Research in Environmental Sciences, University of Colorado http://sciencepolicy.colorado.edu/icecaps/research/media_coverage/summaries/special_issue_2017.html.

2020 was another critical year in which climate change and global warming fought for media attention amid competing interests in other stories, events and issues around the globe. Indeed, while global newspaper media attention dropped 23% from 2019, this level of coverage was up 34% compared to 2018, 41% higher than 2017, 38% higher than 2016 and 24% up from 2015. In fact, 2020 ranks second in terms of the amount of coverage of climate change or global warming (behind 2019) since the monitoring by MeCCO began 17 years ago in 2004 (Boykoff et al. 2021). Even with the obvious Covid-19 drop in climate coverage in the early to the middle part of 2020, climate change nonetheless did not disappear from global-scale public conversations. From Arctic and Antarctic ice loss to Zimbabwe locusts, reports connecting these dots with a changing climate drove media coverage. These were interwoven with stories of Australian and North American wildfires, floods in Bhutan, Bangladesh, Nepal, Sri Lanka and the UK, rainforest retreat in Congo and Russian heatwaves. Further ecological and meteorological accounts linked to climate change included cyclones Nivar and Amphan, tropical storms Nangka and Saudel, typhoons Molave and Goni and hurricanes Nana, Eta and Iota. Political and economic-themed stories in 2020 included decarbonization and renewable energy growth, as well as corporate pledges for emissions reductions and BlackRock divestment plans. Other key events included the US Trump Administration regulatory rollbacks and climate policy (in)action as well as the consequential November 2020 US Presidential election. Many scientific-themed coverage throughout the

year included record-breaking global temperatures and a new understanding of intersectional climate challenges (e.g. links between COVID-19 and climate change) and humans' role in them. Moreover, many cultural stories relating to climate change punctuated 2020, from Greta Thunberg and #FridaysforFuture demonstrations as well as ongoing pipeline protests, *Guardian* style-guide changes to climate coverage and Covering Climate Now[2] initiatives.

Across this nearly eight-year look, there is asymmetrical coverage by geographical region: not every place has seen an increase in media climate change stories. For example, similar to our discussion of coverage up to 2014, there continued to be a relatively low number of stories on climate change or global warming in the regions of South America, the Middle East and Africa throughout this period and up to 2021. This points to a critical regional "information gap" in reporting on these issues—that problematically continues to this day—and relates to media capacity issues and support for reporters in these regions and countries, many of which are and remain on the economic margins.

## Climate coverage at the intersections of multiple contexts, themes and power relations

Tracking media treatment of climate change and global warming through intersecting *political*, *scientific* and *ecological/meteorological* climate themes provides a useful framework for analyses of content and context. Such accounting helps to demonstrate how news pieces should not be treated in isolation from one another. Rather, they should be considered as intimately connected to larger political, economic, social, environmental and cultural conditions and processes.

Moreover, patterns revealed in the mobilizations of journalistic norms internal to the news-generation process cohere with externally influenced dominant market-based and utilitarian approaches that consider the spectrum of possible mitigation and adaptation action on climate change. Robert Brulle has argued that an excessive mass media focus merely on debating individual "characters" and their claims, "works against the large-scale public engagement necessary to enact the far-reaching changes needed to meaningfully address global warming" (2010: 94). As such, examinations of the content of media treatment of climate change need to be considered within the context of larger political and social forces.

The cultural politics of climate change reside in many spaces and places, from workplaces to pubs and kitchen tables. Actors on this stage range from fellow citizens to climate scientists as well as business industry interests and ENGO activists. Over time, individuals, collectives, organizations, coalitions and interest groups have sought to access the power of mass media to influence architectures and processes of climate science, governance and public understanding through various media *frames* and *claims*. Questions regarding "who speaks for the climate" involve considerations of how various perspectives—from climate scientists to business industry interest and ENGO activists—influence public discussions on climate change (Boykoff 2011; see also Boykoff 2019). Actors, agents and/or operatives in this theatre are ultimately all members of a collective public citizenry. However, differential access to media outlets across the globe are products of differences in power, and power saturates social, political, economic and institutional conditions undergirding mass media content production (Wynne 2008).

In the highly contested arena of climate science and governance, different actors have sought to access and utilize mass media sources in order to shape perceptions on various climate issues contingent on their perspectives and interests. For example, "contrarians,"

"sceptics," "denialists" and "obfuscators" have had significant discursive traction in the US public sphere over time (Leiserowitz et al. 2013), particularly by way of media representations and discourses (Boykoff 2013). Specifically, resistances to both diagnoses of the causes of climate change and prognoses for international climate policy implementation have often been associated with the political right in the US, including a wide swath of the Republican Party and the right-wing faction within it known as the "Tea Party" (Dunlap 2008). More contemporary iterations of this faction include "Make American Great Again" (MAGA) acolytes and the so-called "Denialist-in-Chief" in past US president Donald Trump who has continued to call climate change either "fake news" or a "hoax." John Broder of the *New York Times* described this right-of-center US political party stance as an "article of faith," and polling data have shown that "more than half of Tea Party supporters said that global warming would have no serious effect at any time in the future, while only 15% of other Americans share that view" (2010: A1). More recent research (Leiserowitz et al. 2021) suggests that in a national survey, of those polled, only 30% of self-identified moderate Republicans and 12% feel that global warming should be a "high" to "very high" priority, although many did support green energy policies, infrastructure and conservation. This suggests interesting complexities across climate change as an ideological concern and material support of responses to it.[3] Moreover, while carbon-based industry interests have exerted considerable influence over US climate policy, associated scientists and policy actors who have questioned the significance of human contributions—often dubbed "climate contrarians"—have been primarily housed in North American universities, think tanks and lobbying organizations (McCright 2007; Dunlap 2013). In particular, US-based non-nation state organizations such as the Heartland Institute and the American Enterprise Institute (AEI) have held numerous meetings to promote contrarian views on climate science and policy (Hoffman 2011; Boykoff and Olson 2013).

## Contributions to climate storytelling through news

Climate change is a complex and multifaceted issue that cuts to the core of the human relationship with the environment. The cultural politics of climate change are situated, power-laden, media-led and recursive in an ongoing battlefield of knowledge and interpretation (Boykoff et al. 2009; Goodman et al. 2020). Mass media link these varied spaces together, as powerful and important interpreters of climate science and policy, translating what can often be alienating, jargon-laden information for the broadly construed public citizenry. Media workers and institutions powerfully shape and negotiate meaning, influencing how citizens make sense of and value the world.

In various cultural, political, social, economic and environmental contexts, journalists, producers and editors as well as scientists, policy makers and non-nation state actors must scrupulously and intently negotiate how climate is considered a "problem" or a "threat," or as in more recent framings, an "opportunity" for green jobs, economic growth and infrastructure investment (e.g. Stecula and Merkley 2019; Sullivan and White 2020). As part of this process, it has been demonstrated that media reports have often conflated the vast and varied terrain—from climate science to governance, from consensus to debate—as unified and universalized issues (Boykoff 2011). As a consequence, these representations can confuse rather than clarify: they can contribute to ongoing illusory, misleading and counterproductive debates within the public and policy communities on critical dimensions of the climate issue.

To the extent that media fuse distinct facets into climate gestalt—by way of "claims" as well as "claims makers"—collective public discourses, as well as deliberations over alternatives for climate action, have been poorly served. Media focusing on an area of climate

change that contains scientific nuances and uncertainties, such as the degree to which an extreme weather event is the result of climate change, may result in a specious conclusion that more knowledge is needed before taking action on climate change.

Regarding "claims makers," efforts to make sense of complex climate science and governance through media representations involves decisions regarding who the "experts" or "authorities" are who speak for the climate. This is particularly challenging when covering climate change, where indicators of climate change—such as sea level rise, temperature shifts and changing rainfall patterns—may be difficult to detect and systematically analyze (Andreadis and Smith 2007). Moreover, in the advent and increasingly widespread influence of new and social media—along with fewer formalized "gatekeepers" in content generation—the identification of "expertise" can be more, rather than less, challenging. The ability to quickly conduct a Google or Bing search for information is in one sense very liberating and often driven by the MAGA climate-denying crowd's exhortations to "do your own research" (Siegel 2020). Yet, in another sense, this unfiltered access to complex information also intensifies the possibilities of short-circuiting peer review processes (and determinations by "experts") and can thereby do an "end-run around established scientific norms" (McCright and Dunlap 2003: 359). In other words, these developments have numerous and potentially paradoxical reverberations through ongoing public discourses on climate change.

There are many reasons why media accounts around the world routinely fail to provide greater nuance when covering various aspects of climate change. Central among them, the processes behind the building and the challenging of dominant discourses take place simultaneously at multiple scales. Large-scale social, political and economic factors influence everyday individual journalistic decisions, such as how to focus or contextualize a story with quick time to deadline. These issues intersect with processes such as journalistic norms and values (e.g. Boykoff 2011), citizen and digital journalism (e.g. O'Neill and Boykoff 2010), and letters to the editor (e.g. Young 2013) to further shape news narratives. Moreover, path dependence through histories of professionalized journalism, journalistic norms and values as well as power relations have shaped the production of news stories (Starr 2004). These dynamic and multiscale influences are interrelated and difficult to disentangle: media portrayals of climate change are infused with cultural, social, environmental and political-economic elements, as well as how media professionals must mindfully navigate through hazardous terrain in order to fairly and accurately represent various dimensions of climate science and governance (Ward 2008).

Overall, media representations are derived through complex and non-linear relationships between scientists, policy actors and the public that is often mediated by journalists' news stories (Carvalho and Burgess 2005). In this, multi-scalar processes of power shape how mass media depict climate change. Processes involve an inevitable series of editorial choices to cover and report on certain events within a larger current of dynamic activities and provide mechanisms for privileging certain interpretations and "ways of knowing" over others. Resulting images, texts and stories compete for attention and thus permeate interactions between science, policy, media and the public in varied ways. Furthermore, these interactions spiral backward and forward into ongoing media representations. Through these selection and feedback processes, mass media have given voice to climate itself by articulating aspects of the phenomenon in particular ways, via claims makers or authorized speakers. In other words, through the web of contextual and dynamic factors, the stream of events in our shared lives gets converted into finite news stories that can only and ever be partial, unfished and context dependent. Thus, constructions of meaning and discourse on climate change are derived through combined structural and agential components that are represented through mass media to the general public.

## The Greta Thunberg Effect: the continuing rise of #climatenews through digital and social media

Embedded in this dynamism is the ongoing and burgeoning influence of digital and social media. With it comes numerous questions: does increased visibility of climate change in digital and social media translate to improved communication or just more noise that audiences must sift through and filter? Do these spaces provide opportunities for new forms of deliberative communities regarding questions of climate mitigation and adaptation (e.g. Rogers 2004; Harlow and Harp 2013) and conduit to offline organizing and social movements (e.g. Jankowski 2006; Tufekci 2013)? Or has the content of this increased coverage shifted to polemics and inflammatory arguments over measured analysis? In this democratized space of content production, do digital and social media provide more space for contrarian views to circulate or less? And through its interactivity, does increased consumption through social media further fragment a public discourse on climate mitigation and adaptation through the cementing of information silos where members of the public algorithmically stick to sources that support their already held views (e.g. Yang and Kahlor 2012; Hestres 2013)?

While many of these questions have yet to be answered or analyzed in light of climate change discourses and representations in the context of social media, the recent rise of Greta Thunberg, youth climate strikes (#climatestrike) and marches and the #fridaysforfuture[4] "movement" on Twitter, Facebook and Instagram suggest interesting novel dynamics across the climate politics of the digital world and those in the "real world." Pitched as an "ordinary" environmental celebrity in that she rose from relative obscurity to global celebrity status (Abadin et al. 2020), Thunberg vaulted from her lone climate strike outside of the Swedish parliament in 2018, to become a social media sensation through legacy, digital and social media coverage. Thunberg rise, and the social media campaigns that rapidly picked her up as a new climate change icon (Olesen 2022), resulted in the crystallization of a global youth movement for climate change activism that culminated in global climate strikes and a series of marches in the spring and summer of 2019. What is being called the "Greta Thunberg Effect" (Sabherwal et al. 2021; see also Murphy 2021) saw the recursive flowering of online and real world activism with millions partaking in marches, protest, strikes and tweets, retweets, likes and posts across hundreds of countries. Through her shout of "how dare you!" at the UN climate summit—which quickly became "meme-fied" and swiftly traversed the digital world—Thunberg vaulted climate change and youth engagement with it onto the world stage in crucial ways, with some suggesting her digital youth movement not only impacted climate policy (Watts 2019) and coverage but also laid the critical groundwork for positioning climate activism as civic engagement and democracy across multiple generations (Fisher 2019).

Yet, importantly, Sharon Dunwoody has cautioned us to not view various modes of media production equally. As she puts it,

> …because of their extensive reach and concomitant efficiencies of scale, mediated information channels such as television and newspapers have been the traditional channels of choice for information campaigns. But research on how individuals actually use mass media information suggests that these channels may be better for some persuasive purposes than for others.
>
> *(quoted in Boykoff 2009: 2)*

Trends in carrying these creative communications through new and social media unfold in the context of a wider and fundamental set of questions involving how these mediatized

communications may take place in echo chambers or whether they open up novel discussions, considerations and behaviors (e.g. Anderson 2017; Tandoc and Eng 2017). Michael Shank (2017: 14) from the Carbon Neutral Cities Alliance has argued that social media memes are key to successful climate communications. He stated that "if we can't translate a meaty message for the myriad social media vehicles out there, we haven't tried hard enough."

Meanwhile, social science and humanities research into digital behaviors and communication about climate change in the US, the United Kingdom, Germany, India and Switzerland have revealed useful insights. Among them, Walter et al. (2018) found that users mainly stuck with their referent groups, forming insulated conversations rather than engagement across different social, political and cultural perspectives. They explained that online media comment sections thereby "serve as echo chambers rather than as corrective mechanisms" and consequently when "climate-skeptical readers find information that is consistent with their own beliefs…[it] hence gives them the impression that their opinion is the prevalent one in society" (pp. 213–214). Moreover, contrarian organizations have found that by bidding on search terms like "climate change" on Google, this then raises the profile of their content in search engine results (Tabuchi 2017). Regarding the toxicity of fake comments in internet comment sections and chat rooms, Chen (2018: B7) has commented that "there's not much you can do" and "the real leverage lies with the tech companies."

YouTube, with more than 2 billion users worldwide in 2021 and viewers consuming a billion hours on the platform each day, coupled with the Autoplay feature that automatically plays another related video based on a user's viewing history (albeit, a feature that one can turn off), suggests another "echo chamber" arena. Indeed, analyzing the content of comments from the most popular climate change-related videos on YouTube, Shapiro and Park (2018) found that in post-video discussions, climate change activists and sceptics are "tapping into a reservoir of pre-existing beliefs," and that post-video discussions were driven by a small groups of individuals, many of whom were standing for or against climate change-related action (pp. 126–127). Outside of YouTube, Lewandowsky et al. (2019), looked at blog posts that did or did not support the scientific consensus on climate change and their comment sections. They found that "readers may be nudged towards rejection of climate science if they encounter a stream consisting of contrarian comments" (p. 1453), a finding of particular significance given that there are estimated to be tens of millions of active blogs in the US alone.

Such considerations of social media also prompt us to reassess boundaries between who constitute "authorized" speakers (and who do not) in mass media as well as who are legitimate "claims-makers." These are consistently being interrogated and challenged (Gieryn 1999; Loosen and Schmidt 2012). Lewandowsky et al. (2019) analyzed the ways in which internet news services are addressing the concern that a small fraction of readers who leave comments can leverage public opinion about scientific issues, including moderating comments, discontinuing comments, and, in one Norwegian site in particular, requiring readers to pass a comprehension quiz prior to leaving comments. Leiserowitz (2005: 149) has written that these arenas of claims-making and framing are "exercises in power…. Those with the power to define the terms of the debate strongly determine the outcomes." These factors have produced mixed and varied impacts: journalist Alissa Quart (2010) has warned of dangers of mistaken, or convenient, reliance on "fauxperts" instead of "experts," and Boykoff (2013) and Boykoff and Farrell (2019) have examined these dynamics as they relate to amplified media attention to "contrarian" views on various climate issues.

## Conclusions

Connections between media information and policy decision-making, perspectives and be-havioral change are far from straightforward (Vainio and Paloniemi 2013). Coverage certainly does not determine engagement. Rather, it shapes engagement possibility in quantity, quality, depth and effect (Carvalho and Burgess 2005; Boykoff 2008). Our explorations of media coverage of climate change around the world and in the US in this updated chapter seek to help readers better understand the dynamic web of influence that media play amidst many others that shape our attitudes, intentions, beliefs, perspectives and behaviors regarding climate change. As we have posited here, media representations—from news to entertainment, from broadcast to digital, interactive and participatory—are critical links between people's perspectives and experiences, and the ways in which dimensions of climate change are discussed at a distance between science, policy and public actors.

The road from information acquisition via mass media to various forms of engagement and action is far from straightforward and is filled with turns, potholes and intersections. This is a complex arena: mass media portrayals do not simply translate truths or truth claims nor do they fill knowledge gaps for citizens and policy actors to make "the right choices." Moreover, media representations clearly do not dictate particular behavioral responses. For example, research has shown that fear-inducing and catastrophic tones in climate change stories can inspire feelings of paralysis through powerlessness and disbelief rather than motivation and engagement. Andrew Hoffman has said, "typically, if you really want to mobilize people to act, you don't scare the hell out of them and convince them that the situation is hopeless" (Ryzik 2017). But with other audiences and people, fear can inspire motivation and a willingness to take action in the face of climate threats. Chapman et al. (2017: 848) have observed that "the bifurcation between 'go positive' and 'go negative' simultaneously oversimplifies the rich base of research on emotion while overcomplicating the very real communications challenges advocates face by demanding that each message have the right 'emotional recipe' to maximize effectiveness." In addition, O'Neill et al. (2013) found that imagery connected with climate change influences saliency (that climate change is important) and efficacy (that one can do something about climate change) in complex ways in their study across the country contexts of Australia, the US and United Kingdom. Among their results, they found that imagery of climate impacts promoted feelings of salience, but undermined self-efficacy, while imagery of energy futures imagery promoted efficacy. Further research has found that imagery can grab attention, promote comprehension, create awareness, change beliefs, and reshape intentions, perspectives, reasoning and behavior (Hansen and Machin 2008; O'Neill 2017). Overall, media portrayals continue to influence—in non-linear and dynamic ways—individual to community- and international-level perceptions of climate science and governance (Wilby 2008). In other words, mass media have constituted key interventions in shaping the variegated, politicized terrain within which people perceive, understand and engage with climate science and policy (Schäfer and Painter 2021).

Over time, many researchers and practitioners have vigorously debated the extent to which media representations and portrayals are potential conduits to attitudinal and be-havioral change (e.g. Dickinson et al. 2013). Nonetheless, as unparalleled forms of communication in the public arena, research into media representational practices remains vitally important in terms of how they influence a spectrum of possibilities for governance and decision-making. As such, media messages—and language choices more broadly (Greenhill et al. 2013)—function as important interpreters of climate information in the public arena, and shape perceptions, attitudes, intentions, beliefs and behaviors related to climate change

(Boykoff 2011; Hmielowski et al. 2013). Studies across many decades have documented that citizen–consumers access understanding about science and policy (and more specifically climate change) largely through media messages (e.g. O'Sullivan et al. 2003; Antilla 2010).

Furthermore, mass media comprise a community where climate science, policy and politics can readily be addressed, analyzed and discussed. The way that these issues are covered in media can have far-reaching consequences in terms of ongoing climate scientific inquiry as well as policy maker and public perceptions, understanding and potential engagement. In this contemporary environment, numerous actors compete in these media landscapes to influence decision-making and policy prioritization at many scales of governance. Multitudinous ways of knowing—both challenged and supported through media depictions—shape ongoing discourses and imaginaries, circulating in various cultural and political contexts and scales. Furthermore, varying media representational practices contribute, amid a complex web of factors, to divergent perceptions, priorities and behaviors.

More media coverage of climate change—even fair and accurate portrayals—is not a panacea nor is it always good (see the "Trump Dump" above). This is clear from the increase of coverage shown in Figures 16.1 and 16.2 and the fact that, even with the lack of emissions due to global Covid-19 lockdowns, atmospheric $CO2$ levels continue to rise (Harvey 2020) and are approaching concentrations seen 15 million years ago when sea levels were 20 meters higher than today (Watts 2020). In fact, increased media attention to the issue often unearths more questions to be answered and greater scientific understanding can contribute to a greater supply of knowledge from which to develop and argue varying interpretations of that science (Sarewitz 2004). At best, media reporting helps address, analyze and discuss the issues, but not answer them: dynamic interactions of multiple scales and dimensions of power critically contribute to how climate change is portrayed in the media. As we have detailed above, mass media representations arise through large-scale (or macro) relations, such as decision-making in a capitalist or state-controlled political economy and individual-level (or micro) processes such as everyday journalistic and editorial practices and the rise of digital social media movements.

The contemporary cultural politics of climate change thread through a multitude of rapidly expanding spaces. Within this, the media serve a vital role in communication processes between science, policy and the public. The influence of media representations as well as creative and participatory communications—nested in cultural politics more broadly—can be ignored or dismissed in shaping climate science and governance at our peril.

## Notes

1  https://sciencepolicy.colorado.edu/icecaps/research/media_coverage/summaries/
2  https://coveringclimatenow.org/
3  See Leiserowitz et al. (2021) for in-depth data analysis of beliefs and response to climate change by political party in the US.
4  www.fridaysforfuture.org

## Further reading

Boykoff, M. (2019) *Creative (climate) communications: Productive pathways for science, policy and society*. Cambridge: CUP

This book integrates lessons from the social sciences and humanities to more effectively make connections across climate change issues, people and things that everyday citizens care about. There is no "silver bullet" to communications about climate change. Instead, a "silver buckshot" approach is

needed, where strategies effectively reach different audiences in different contexts. This tactic can then significantly improve efforts that seek meaningful, substantive and sustained responses to contemporary climate challenges. It can also help to effectively recapture a common or middle ground on climate change in the public arena. Boykoff suggests ideas on how to harness creativity to better understand what kinds of climate communications work where, when, why and under what conditions in the twenty-first century.

Mann, M. (2021) *The new climate war: The fight to take back our planet.* London: PublicAffairs
This book confronts the usual ways in which climate change causes and consequences are discussed through individual actions. With several decades of experience researching and discussing climate science and policy, Mann outlines important dimensions of fossil fuel distractions and delay tactics that have impeded the scale of engagements that are needed to more effectively and necessarily meet climate change challenges. Mann focuses on interactions at the collective scale as he outlines plans for accountability for both governments and corporations in order to catalyze large-scale and systemic changes needed to equitably and effectively address 21st century climate change and its current and impending impacts.

Corner, A. and Clarke, J. (2017). *Talking climate: From research to practice in public engagement.* London: Palgrave.
The question of how to communicate about climate change and build public engagement in high-consuming, carbon-intensive Western nations, has occupied researchers, practitioners and campaigners for more than two decades. Corner and Clarke describe a novel approach to climate change communication: five core principles for public engagement that can propel climate change discourse out of the margins and into the mainstream. By spanning the full width of the space between primary academic research and campaign strategies on climate communication, this book will be relevant for a wide audience of academics, educators, campaigners, communicators and practitioners.

Doyle, J. (2011). *Mediating climate change.* New York, NY: Routledge.
This book confronts how nature and the environment have been problematically separated from humans and culture. By interrogating how climate change becomes meaningful in our lives, Doyle explores how imagery shapes our understanding, and how climate mitigation efforts in particular relate to our food consumption choices, support for social movements and commitments to creative experimentation and engagement. In the interstices of climate science, culture and society, Doyle examines how mediation and visualization—as intensely values-laden processes—shape how we consider and respond to climate challenges.

Moser, S. C. (2016). Reflections on climate change communication research and practice in the second decade of the 21st century: what more is there to say? *Wiley Interdisciplinary Reviews: Climate Change,* 7(3), pp. 345–369. doi: 10.1002/wcc.40
This paper focuses on academic contributions to climate communications since a similar stock-taking exercise in 2010. In it, the article delineates significant advances, emerging trends and topics and tries to chart critical needs and opportunities going forward. New challenges and topics have emerged that communication researchers and practitioners now face in the context of climate change. Moser reflects on the crucial need to improve the interaction between climate communication research and practice, and calls for dedicated science practice boundary work focused on climate change communication. A set of new charges to climate communicators and researchers are offered in hopes to move climate change communication to a new place, at once more humble yet also more ambitious than ever before, befitting to the crucial role it could play in the cultural work humanity faces with climate change.

Pezzullo, P. C. and Cox, R. (2018). *Environmental communication and the public sphere.* Fifth edition. London: SAGE Publications.
The fifth edition of this book focuses on the role that human communication plays in influencing the ways we perceive the environment, including the climate and climate change. In particular, it examines how we define what constitutes an environmental problem and how we decide what actions to take concerning the natural world. Pezzullo and Cox offer insights into the news media, environmental policy and politics, environmental conflict, advocacy campaigns and other real-world

applications of environmental communication. This latest edition explores recent events—the Trump Administration, wolf conservation, public land milestones, the Flint water crisis, corporate disinformation campaigns, new alliances for a "just transition" in a growing renewable energy economy, the People's Climate March, international legal precedents, and other topics—to illustrate key terms and the significance of environmental communication.

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# 17

# ENVIRONMENTAL COMMUNICATION, GLOBAL TRADE AND BEING HERE

*Libby Lester*

The music is just audible to the breakfast radio audience on the other side of the world (ABC 2021). The interviewee has briefly left the opera she is attending in celebration. Today, the ban on cruise ships from entering Venice comes into force. The ban has occurred after UNESCO, the international body that determines the World Heritage List, threatened Venice's status, accusing the cruise industry of endangering the environmental values of the lagoon in which Venice sits and the 1,000-year-old city's buildings, population and liveability. Venice, says Jane Da Mosto, founder of the protest organisation We are Here Venice, is a mirror on the world – 'a source of inspiration and a microcosm for many of the most important global challenges' (We are Here Venice 2021).

The concept of 'here' refers to a location defined by one's presence and an awareness of place and environment. Sometimes, as per the deep roots of the word, this means being physically in the same location. For example: 'We live here.' 'My home is here.' 'We belong here.' Or it could mean a shared moment or observation: 'It ends here.' 'Here it is.' In modern usage, the word also connects us to elsewhere. Point to a map: 'It is happening here.' Turn on a screen: 'You can see it here.' Pull up a website: 'Look, here.' Tweet: 'I don't like what is being done here.' Or, as activists in Venice and in many other places around the world now say across multiple communication media channels: 'We are here. Witness many of the most important global challenges right here.'

The connection between people and the environment is changing. As more governments, companies and individuals scan the globe for greater access to primary resources such as minerals and timber, for food, power and water, and for destinations for work, holidays and homes, pressures on places and people grow.[1] At the same time, global environmental risks – most notably climate change – produce new networks and unfamiliar forms of politics. We know that communication media are integral to this change. They act on and interact with the physically diverse groups and individuals that are now called upon or seek to influence the negotiations and decisions that affect often far away landscapes and communities. Together, they push and puncture the boundaries that contain the 'local' and distort the form we apply to the 'global'. Consciousness of and empathy for other places and communities are reconfigured by knowledge of shared risks and impact, even by a sense of belonging. 'Communities of concern' are evoked, within and beyond local places and bounded states.

I might ask, for example, who is 'here' in the forests in Tasmania, Australia's southern island state where I live, determining how these landscapes are used for timber or tourism or conservation into the future? It is not only the people of Tasmania, their governments and their industries, but Malaysian forestry and oil palm companies, Japanese construction corporations, protesters from Belgium and Britain, consumers in Tokyo and London choosing flooring or outdoor furniture, NGOs based in the US, journalists in Japan, tourists in China, UNESCO's World Heritage Committee in Paris. There are tens of thousands of people who sign a petition on social media, view a documentary on the forests with a David Attenborough voiceover, google 'ten best national parks on a travel site' – they are all 'here' too, influencing the future of these landscapes. What are their rights to participate in decisions about these forests? What is their responsibility? What are my rights and responsibilities to engage with them? And what role do changing media practices and technologies play in this?

This chapter identifies features at work in some of these 'heres' – the communities, places and issues embedded in global networks of media, trade and politics. It asks how they are now connecting or becoming disconnected by environmental harm and risks, global flows of goods, resources and people, and communication media that we seem unable or unwilling to take responsibility for. How do these communities that form in and through media interact with and impact those who exist physically in these environments? And how might these 'heres' actually protect environments?

I begin by introducing the concept of mediatised environmental conflict, which Brett Hutchins and I developed from our research on media and environmental politics over many years. It then provides three brief examples drawn from the Asia–Pacific region, a region that remains underrepresented in international media studies scholarship. One only needs to consider the fact that Australia has shifted from being among the remotest countries in the world to being positioned within 10,000 kilometres of a third of global economic output, rising to half by 2025 to understand why we need to focus more on this region (Commonwealth of Australia 2012). From an Australian perspective, this growth creates opportunities – bigger, nearer markets for its primary resources such as minerals and timber, more exotic destinations for work, study or holidays, and essential food, energy and water. But it also creates challenges and risks. Regional conflicts occur as countries strengthen efforts to guarantee the sources and supply routes of essential resources; pressures rise on resources and infrastructure, alongside the frequency and severity of climate change–induced natural disasters; and environmental degradation hinders capacity to meet demand. Declining soil fertility, loss of species and ecosystems, biosecurity risks and stresses on water systems are very real threats to the region's long-term prosperity.

Mediatised environmental conflict (Hutchins and Lester 2015) is a category of conflict that has reached a new order of scale and intensity, growing alongside widespread concerns over the state of ecosystems, species, wilderness, forests, food productions systems, resource extraction and the atmosphere, all of which affect – if unequally – the lives of billions of humans and the complex ecosystems within which people reside. The effects of climate change, combined with prolonged climate change denial, notbaly in the United States and Australia, played a decisive role over several decades in shifting the environment and environmental conflict to the centre of political and news agendas around the world, drawing in a range of media, industry, political, and sub-political groups and organisations. These battles now routinely play out on the 'public screens' (de Luca, Sun and Peeples 2011) of mass, mobile and social media, concentrating individual and collective attention on the experience of environmental degradation and loss.

Based on extensive fieldwork of environmental campaigns,[2] we have found that such conflict is constituted by the interactions occurring between four key spheres of action: (i) activist strategies and campaigns, (ii) journalism practices and news reporting, (iii) formal politics and decision-making processes and (iv) industry activities and trade (Hutchins and Lester 2015). These spheres each have their own extensive networks of media, political and economic power, influenced by institutional affordances and limitations, professional norms and practices, commercial opportunities, and the uneven command of symbolic resources, all of which are in turn impacted by the dynamics of a convergent media environment. Each of the spheres of action deploys scientific knowledge, yet scientists themselves have generally failed to constitute a sphere of science in and of itself within mediatised environmental conflict (Lester 2019; Cullen-Knox et al. 2021).

Central to these interactions is the process of mediatisation, in which communication media are not only fully embedded and implicated in social change, but constitutive of that change. John B. Thompson noted this process in 1995 when he suggested that the interaction between media and social change can be understood through the creation of a 'mediated worldliness,' where 'our sense of the world which lies beyond the sphere of our personal experience, and our sense of our place within this world, are increasingly shaped by mediated symbolic forms' (Thompson 1995: 34–45). As media increasingly infuse this sense of the world,

> so too our sense of the groups and communities with which we share a common path through time and space, a common origin and a common fate, is altered: we feel ourselves to belong to groups and communities which are constituted in part through the media.
>
> *(Thompson 1995; see also Couldry and Hepp 2016)*

This process cannot be recognised by analysing communication media alone. As Thompson's seminal work noted, using communication media 'involves the creation of new forms of action and interaction, new kinds of social relationships and new ways of relating to others and to oneself' (1995: 34–45). For global media scholars, this rules out a retreat to 'desktop' fieldwork or the option of only studying media content, which can miss or overstate certain events (Murphy 2017; Kraidy 2018). Ulrich Beck (for example, 2009, 2011) and Manuel Castells (for example, 2009, 2011) also showed emphatically in their work on the 'risk society' and the 'network society' that major corporations, regional and national governments, international governance regimes, non-government organisations, community groups, industry associations and scientific institutions are all important actors in these actions and interactions, these new kinds of social relationships.

In studying transnational mediatised environmental conflict, one now needs to simultaneously grasp and let go of established borders and boundaries, both the formal ones that divide nations or define trade deals or set environmental policy or laws, and the ones that communications media and we as researchers impose ourselves to help make sense of the world. National borders, for example. As Nancy Fraser (2014) and others exploring the idea of a transnational or global public sphere have repeatedly asked, how can responsibility be allocated and appropriate responses determined and demanded when the arenas for politics, law, communications and risks themselves cross national boundaries rather than the map on to specific jurisdictions. How, in these conditions, can public opinion be formed, recognised and activated to impact environmental decision-making?

Likewise, 'Global South' is an increasingly applied tool for structuring thinking about power and the flow of trade, politics and communications. Yet, its application must be tempered when considering the impact on specific places of a global economy that criss-crosses over longer and more complex chains supplying consumers across the world. Tasmania, for example, is a small island in the Southern Ocean, largely reliant on selling its resources and primary products – minerals, trees, fish, dairy, abalone, cherries – to middle-class consumers in the unevenly developing Asian region to the north. When some of these products and resources go north to be sold in a country in the Global North, such as Japan or Britain, they often go via the Global South –Vietnam or Indonesia – for processing along the way. Tasmanian timber products are destined not only as flooring and formwork in Tokyo and London, but as pulp for paper mills in China and Vietnam. As Peter Dauvergne and Jane Lister noted in relation to timber, trade no longer flows primarily along a consistent and direct pathway from producer to consumer, but is 'increasingly flowing through every emerging national economy – including Brazil, China, India, Indonesia and Russia – as well as through every developing region' (2011: 6). At every link of a supply chain, there is unequal access to wealth and privilege, uneven distribution of environmental risks and burdens, and vulnerabilities and gains that come through exposure to political activity and communication media.

And finally, there are the texts, platforms and actors themselves, where an image can carry a meaning that differs from accompanying words, an Instagram post has more impact than a news feature, and where what doesn't appear is more telling than what does (Hansen 2011; Lester and Hutchins 2012; Hansen and Machin 2016). As such, the examples presented next draw on media texts, interviews with key actors and direct observation to trace media discourse 'objects' as they circulate within and beyond these spheres and boundaries, carrying symbols that 'speak out' to others, making communities of concern visible or invisible, interrupting or strengthening supply chains and flowing or being contained as they move transnationally and across time.

## Bottling the water

The tiny town of Stanley in the Australian state of Victoria has a population of 370 and is now largely reliant on apple and nut growing for income. Stanley – like much of Australia – regularly experiences drought, and often faces summers of soaring temperatures, dangerous bushfires and water restrictions. In 2013, a newcomer arrived in town. He bought a small orchard in the area, which also came with substantial water rights (Wright 2018). While the general principle underlying water rights in Australia is that the site where water is accessed and the site where it ends up will be connected hydrologically (White and Nelson 2018), in this case the new owner was granted permission by the regional planning authority to access 19 million litres of water a year via a 60-metre-deep bore to sell as bottled water.

The water was trucked through the small town to the regional centre of Albury, about 60 kilometres away, to a bottling plant owned by Asahi Beverages, the Australian subsidiary of Asahi Breweries, which is at the core of the giant Tokyo-based Asahi Group Holdings. Asahi Group Holding reports annual total sales across its alcohol, soft drinks and food arms of over 2 trillion yen (or US $18 billion). From its famous Phillip Stark-designed golden corporate headquarters in Shibuya, Asahi has 207 subsidiaries and 71 plants worldwide, largely in Europe, Australia and South-East Asia, with 39% of its total business occurring outside Japan (Asahi 2021).

Communities in the United States, Canada and Europe have also clashed with the bottled water industry, including the residents of the French spa town of Vittel – a name now more famous internationally for the bottled water that is produced there than the locality itself – who have accused Nestle of 'selling so much of their water to the rest of the world that they barely have enough left for themselves' (White and Nelson 2018).

The Australian protesters claimed that agricultural activity, sustained by access to water, was the key to sustaining the town. The problem for these local protesters, including the shire mayor, and one they hoped the courts would agree with when they began what turned into a four-year legal battle, was not only that the from-and-to hydrological connection had been broken in Stanley, but so too had the from-and-to community connection with place. The various court cases – which the Stanley community campaigners eventually lost – became fully integrated into the protest strategy. These created space within mainstream news media for protesters to widen the framing of the debate by pushing for policy change within Australia and to reframe the debate as a social justice issue with international relevance (see Konkes 2018; Nixon et al. 2021, for recent discussions of 'green lawfare'). For example, Ed Tyrie, chairman of Stanley Rural Community Inc, called on parliament to change regulations to prevent water mining, claiming:

> It fails us and all Victorians when a private company is lawfully allowed to take groundwater and sell it for use as bottled water at a significant wholesale price to a multinational corporation, Asahi Beverages-Schweppes, without any measurable, meaningful dividend for the environment and for our community.
>
> *(Wahlquist 2018)*

The court losses prompted the intervention of an international political organisation, SumOfUs, an 'online community' 'fighting for people over profits' and 'which exists to put bad corporations back in their place' (SumOfUs 2021). The United States-based organisation is funded largely by individuals and donations, and its 'connective' online campaign activities are supported by a strong cross-media strategy that includes issuing media releases on its activities. This builds the type of news media visibility witnessed in the Stanley case, initiated when signups to an online petition (each 'signature' is described by SumOfUs as an individual 'action') reached 120,000 and spread across a wide range of news outlets in 2018. The framing of the dispute in the online campaign was familiar, with tankers 'rolling up' to risk the livelihoods of the 'tiny community' (SumOfUs 2018).

For campaigners, the notion of a transnational community of concern became the key framing device. Stanley, for example, was: 'in a David versus Goliath battle with the multinational beverages company, but communities around the world are facing the challenge of "water mining."' Familiar points of reference were provided for distant supporters: to 'the small town of Osceola' in Michigan 'fighting off a lawsuit from Swiss giant Nestlé which pays just $200 a year to pump millions of litres of water from the near town's water reserves' to the 'nine-year battle in Cascade Locks, Oregon, killing off Nestlé's plans to start pumping there' (SumOfUs 2018).

While the campaign remained targeted, with the petition aimed at 'showing Asahi executives that consumers also care a great deal about where water comes from,' campaign leader Ed Tyrie, clearly laid out the relationship when he said, 'Asahi is responsible for the problem in this case so our campaign will be a multinational approach to a multinational problem.' This, he said, 'is not just a problem for Stanley anymore, it's a problem for the whole world' (O'Shea and Somerville 2018).

## Trading the timber

For a second example of how the spheres of mediatised environmental conflict act and interact through transnational networks, the chapter turns to the forests of Tasmania and Borneo and the connections between corporations and NGOS from Washington, to London to Tokyo. Both Tasmania and Sarawak are known for export forest industries that generate massive wealth for their owners, while operating under regimes of questionable governance and opaque laws. Mediatised conflict over Tasmania's forest industry lasted for decades, beginning in the 1970s through a woodchips export trade to Japan, then through a period of massive industrialisation from the 1980s through to the last decade. Tasmania became a world leader in environmental protest – in fact, the world's first green party emerged from here – and its politics remains very much focused on environmental issues (Lohrey 2002; Lester 2019, see also Chapter XX this volume).

Sarawak's timber industry – now entwined with the palm oil industry, where vast tracts of land are converted from native forests to oil palms – has been one of the world's most controversial. The industry is accused of unsustainable logging practices and lack of environmental certification, and alienation of traditional owners and local communities from their lands (Straumann 2014). Among the six companies that hold tenure over 30% of Sarawak's total land area is Ta Ann, whose subsidiary operates in Tasmania, Australia – among many other places – with continuing support from the Tasmanian government. Both conflicts have been marked by violence over the years, and local journalists have been cowed by government complicity in land grabs, a mainstream media largely owned or controlled by forest companies, and a social world turned upside down by land conversions in which they and their families are sometimes intimately involved (Straumann 2014; Beresford 2015; Lester 2017; Global Witness 2018).

The media threads that connect these conflicts and work around the 'chilling effect' on local journalism are important. For example, a tiny protest group in Tasmania worked with an equally tiny Japanese NGO to translate a report on Tasmanian forest practices into Japanese in order to circulate the evidence that hardwood timber being marketed in Japan as plantation sourced was in fact coming from native forests. The Tokyo arm of the international Rainforest Action Network provided detailed corporate knowledge required to untangle the complex purchasing and financing deals underpinning the trade, which was then used to achieve meetings with Japanese importers and retailers and led to the cancellation of contracts. From this emerged an Australian organisation, 'Markets for Change,' led by a former politician from the Greens party, that used these relationships with the Japanese corporations – in partnership with international NGOs such as Global Witness – to produce and deliver detailed reports on Japanese corporation's involvement in Borneo deforestation (Lester 2014).

The 2016 'Forest to Floor' report is an example of the type of information activism that increasingly follows the transnational trade of natural resources (Markets for Change/ JATAN 2016). Published in English and Japanese, this report focuses on the Sarawak-Japan timber trade, and specifically the 55% of plywood produced from Sarawak tropical forests that are imported into Japan. It uses powerful images of indigenous owners and simple diagrams to trace, first, the production process from forest harvesting to shipment to Japan, and second, the companies involved in each step of the supply chain, from the Malaysian timber corporations, to major Japanese trading companies of Sarawak timber, to Japanese major flooring manufacturers, to distributors and wholesalers, to housing companies.

Meanwhile, strategic protest activity occurs across media to suggest the possibility that communities of concern exist and may marshal significant transnational forces at any moment. In Tasmania, for example, a young woman lived on a platform in a tree for over a year, connected to the world by a solar-run laptop and a nearby telecommunications tower (Lester 2019). Corporations present themselves as reluctant partners in this form of transnational political activity, suggesting they are forced to pursue change down their supply chains on behalf of the NGOs or face public shaming through media. 'We are constantly talking to our Sarawak supplier,' said one executive in interview. 'We are aggressively asking them to report, to change their mindset. Gradually we start to change their mind. But the NGOs are not yet satisfied' (Lester 2019).

## Saving the reef

The third example of transnational mediatised environmental conflict focuses on activism around The Great Barrier Reef, the world's largest coral reef system. It was listed by the World Heritage Committee in 1981 for its range of outstanding values, including being 'probably the richest area in terms of faunal diversity in the world' (UNESCO n.d.a). The Great Barrier Reef is a global nature superstar. However, major coral bleaching events connected to rising sea temperatures associated with climate change, plus run off from coastal strip development and agriculture that includes cattle grazing and sugar cane farming, are creating significant concern. The Great Barrier Reef has been described by its management authority as an 'Icon under Pressure' (GBRMPA n.d.b), and only through intense lobbying by the Australian Government has twice narrowly avoided being listed by UNESCO as World Heritage 'in danger' (Al Jazeera 2021).

Recent environmental campaigns to protect the Reef have played out within the context of Australia's 'extreme' climate change politics, which has seen climate change and energy policy implicated major political upheaval over the last two decades. Plans to further entrench Australia's status as the world's largest coal exporter are based on the proposal for nine mines in the massive Galilee Basin deposit, 400kms inland from the Reef, in central Queensland. The Carmichael mine, owned by one of India's largest corporations, the Adani Group, will – if financed and granted final approvals – produce 60 million tonnes of coal a year. It will join the AU$57 billion of coal currently exported each year from Australia, most of which goes to Japan (Foxwell-Norton and Lester 2021).

Both the spectacular nature of the Reef and the stresses it is under have consistently framed media texts that attribute responsibility across various institutional, political and geographic arenas. In an explicit example from the UK edition of the Guardian, high-profile Australian scientist and environmental campaigner, Tim Flannery, set the tone and provided steps for concerned 'others' to take:

If the Carmichael coal mine is a global story, and the Great Barrier Reef a global asset, then the issue should not be left to Australia alone to decide. The citizens of the world deserve a say on whether their children should have the opportunity to see the wonder that is the reef. Opportunities to do this abound (Flannery 2014).

Internationally, Greenpeace attempted to 'bring home' the dangers to the Reef when it warned that 'any dumping of dredge spoil on the World Heritage-listed reef will be an "international embarrassment" and akin to "dumping rubbish in the Grand Canyon"' (Greenpeace 2014). It further invoked the spectacular when it produced an advertisement that accused the Australian Government of killing Nemo – in a blender.

Such appeals have manifested across a range of local, national and international forums. Legal and governance structures are key spheres for drawing attention to the spectacular while publicly attributing responsibility, particularly given the well-established relationship between these institutional arenas and journalistic reporting practices. By early 2015, court cases against Adani and its Carmichael mine were underway in Australia, including one brought by the Conservation Action Trust, an Indian environmental group, reported to be the first such challenge in Australia mounted by overseas activists, and making explicit Indian communities' stake in the debate:

Debi Goenka, an executive trustee of the CAT, said:

> The coal from Carmichael, when burnt in India, threatens the health and livelihoods of poor, rural people in India. These people can't afford the electricity that will be generated – all they'll get will be damage to their health and the air, water, land and natural resource base on which their survival depends.

> *(Milman 2014)*

Through 2015–2016, protest activity heightened, displaying many of the features common to mediatised environmental conflict, including targeted activity during election campaigns, coordinated street marches and rallies organised by an alliance of local, national and international protest groups, lockdowns and other targeted activities at branches of banks reported to be considering financing the mine, image generation and circulation using nationally recognised musicians, online petitions circulating across social media platforms, a range of legal challenges brought by environmental NGOs, and mainstream media coverage challenging Adani's credibility.

Events of March 2017 deepened the politics of representation and connectivity evident in the conflict when 90 prominent Australians signed an open letter to Gautam Adani, chair of the Adani Group. The letter, a response to the Queensland Premier's visit to India to convince Adani executives to proceed with the mine, included prominent business executives, Reef tourist operators, well-known novelists, Green politicians, and sportsmen (see, for example, Chappell 2017).

In one of its first editorials of 2019, the Murdoch-owned *Australian* newspaper outlined what it considered a legitimate community for deciding environmental matters. It also made it clear what and who these communities needed to be concerned about. Indeed, rural and regional communities, it wrote under the heading 'Green Activists Threaten Growth,' 'have a lot to be concerned about,' given legal actions by environmental groups and 'green expectations of inner-city voters.' These were harming 'regional Australia, including indigenous communities,' which depended on the 'jobs and infrastructure generated by projects such as the one in the Galilee Basin' (The Australian 2019). The fact that the nine mines proposed for the basin would be owned and operated by multinational corporations was not a cause of concern to the *The Australian*. Rather, it was the 'multinational agendas' of environmental campaigners that were the real worry. The 'tactics that have delayed and diminished Adani's plans to open a new minerals province' were described as a 'textbook case' and 'the leading edge of a much bigger agenda' (The Australian 2019).

## Conclusion

In conclusion, a question: How, among these shifting networks and allegiances and the multiple and sometimes contradictory roles each of us is required to play, can mediatised

environmental conflict be more effective in terms of supporting sustained positive change for environments, places and people?

First of all, numbers are no longer enough. The numbers – of protestors, of people affected, of jobs, of subsidiaries, of profits made – form the basis of press releases that in turn frame news stories that circulate across multitude media and communications channels, in turn reinforcing the magnitude and thus significance of the development, the trade or the political action. Increasingly, the pursuit of these numbers – to grow or to build networks of size – is an end in itself, with protest size or organisational growth equated with impact. Yet, we need look no further than to one of the most celebrated global campaigns of the last decade – against the use of unsustainable palm oil in everyday grocery products from margarine to soap to cereal to chocolate – to see limits. Greenpeace, which declared victory on palm oil for its massive social-media shared 2010 KitKat campaign against Nestle, in which an office worker taking a break is faced with a severed orangutan finger, now acknowledges that tropical deforestation has not been slowed (Ruiz 2018).

In fact, according to Greenpeace, Nestle, Unilever and other corporations that declared they would stop using uncertified palm oil across their range of products continue to buy palm oil from companies converting rainforests into oil palm plantations in Borneo, Papua and other equatorial regions (Taufik 2018). Consumers across the globe – even those who have joined protest actions – are implicated by continuing to purchase products that are contributing to species loss, greenhouse gas emissions and the multitude of human rights abuses associated with the land grab and conversion continuing to be perpetrated against some of the world's poorest communities.

Second, we need to support the means for sharing stories and images to distant others. It is now common to attribute the birth of the modern environmental movement to the Earthrise image of 1968, a moment of shared awe and vulnerability made possible through media (Cosgrove 1994). Not all symbolic representations of vulnerability are as welcome, however. Despite many attempts to constrain such powerful frames from circulating to perhaps invoke the formation of communities of concern that will intervene, they must continue to break through (Hansen and Machin 2016).

Third, government, industries and news media need to let go of the myth of a bounded community and rhetoric that seeks to delegitimise the rights of outsiders to be heard in environmental decision-making. There were never hard borders that contained the 'affected' to within say a 20-kilometre radius, and they are even less likely now. This is not to say that those physically located at the sites where developments are occurring, where resources are extracted or procured, do not have additional rights. These, in democratic countries at least, are provided through elections and other formal citizenship rights. But the framing of trans-local or transnational protest communities as illegitimate on the one hand, while supporting the activities of transnational corporations driven by export and global consumer demands on the other, is nonsensical. This framing has been a repeated feature in the debate over the Adani coal mine and the future of the Great Barrier Reef, reinforcing the fact that news media continue to play a problematic role as a sphere of mediatised environmental conflict, while still failing to create ideal conditions for crucial public debates.

Fourth, despite the plurality and internal disagreements obvious within the sphere of environmental campaigns, making visible what is otherwise hidden should remain a core tenet. A sense of stewardship for the environment is best created when communities are empowered to participate in deciding their futures (Foxwell-Norton 2018). Even when policy and laws are agreed and enacted, community support is essential to ensure they are adopted, monitored and enforced. Whether these communities are located physically at the sites of

conflict or formed within and through communication media in the face of risk and loss, as per the Great Barrier Reef case, their participation is vital for a continuing sense of environmental responsibility.

Fifth, scientists must become visible in a way that makes science a key sphere of mediatised environmental conflict. Scientists have an important role to play in carrying their knowledge into public debate, and this means letting go of the idea that their communications will be delivered uninterrupted to receptive audiences, including those making policy or pursuing or protesting the development. A core problem facing science is that science communication understands itself and largely gathers its authority and legitimacy by defining its terrain in terms of 'science' rather than 'communication' (Lester and Foxwell-Norton 2020). The politicised nature of scientific knowledge as it enters mediatised conflict means that it is rarely understood by the public in terms of the rigour of research underpinning it. Scientists need to be willing to carry it into the arena of mediatised environmental conflict and participate alongside and through other political actors, including activist groups, news media, industries and government. Even when scientists remain absent, there is no divorcing their work from these politics.

Finally, we need to be wary of representing still emerging forms of communication media as something separate from humans. It is one thing to recognise complexity in their multitude of actors, platforms, technologies, owners and related practices, even to note resemblances to the vast natural ecological systems that require global co-operation to conserve and manage. It is another thing to relinquish responsibility, suggesting that communication media are beyond our control or stewardship. Media are a product of humans, created, controlled and deployed or not according to the will – or lack of will – of people. They are complex, but not so complex that they are beyond our capacity to comprehend, our rights to harness, or our responsibility to insist they are organised for common good. We investigated old news media power in relation to environmental communications; we now need to ramp up our investigations into media and power and their impact on our shared futures, our 'heres.'

## Notes

1 This chapter is based on a keynote presentation, 'The View from Here: Transnational Environmental Conflict for a Mediatised Age,' at the Conference on Communication, Culture and Media Studies, 19 April 2019, Universitas Islam Indonesia, Yogyakarta, with full findings published in *Global Trade and Mediatised Environmental Protest: The View From Here,'* Palgrave Macmillan.
2 The work has been developed through research projects supported by the Australian Research Council's Discovery Program (notably, DP200103360, DP150103454, DP1095173).

## Further reading

Asahi. https://www.asahigroup-holdings.com
Asahi's website provides essential insight into how global businesses operate across the world – procuring resources, maintaining supply chains, managing brand and reputations and negotiating conflicts. We will, says Asahi, 'promote "GlocaI Value Creation Company" by transforming our domestic business toward Value-Focused Management and making our international businesses a further growth engine.'

Global Witness. https://www.globalwitness.org/en/campaigns/environmental-activists/Reporters without Borders. https://rsf.org/en
Strategic attempts to circulate or contain information are fundamental to the practices, logics and platforms of communication media. Yet, in many parts of the world, violence and murder of environmental

activists and journalists are also involved, given how much is at stake in accessing resources, such as minerals, timber and water.

Thompson, John B. 1995. *The media and modernity: A social theory of the media*. Cambridge: Polity.
It takes time for us to develop a common language and shared understanding about big shifts in our social world. Globalisation was the subject of debate for decades in the previous century. Now, it is mediatisation's turn. Essential to understanding the current debate about mediatisation is this seminal work, which asked what impact media have had on society across the centuries and suggests still useful ways of thinking about visibility, publicness and information flows.

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# 18

# AN INTRODUCTION TO MISINFORMATION AND ENVIRONMENTAL COMMUNICATION

*Christopher D. Wirz and Dominique Brossard*

## The state of mediated environmental communication and how it has changed

In recent years, online sources and social media have grown to be prominent sources of news, especially with younger audiences, and television news has remained a prominent source as well, especially with older audiences (Newman et al., 2016; Newman et al., 2017). Throughout the COVID-19 outbreak, these trends appeared to continue with an increase in the use of mainstream media for news, as well as an increased use of online sources and social media (Newman et al., 2020). In the most recent analyses of news media in the U.S., online sources remain the most prominent, followed closely by television, and the use of print media is relatively low (Newman et al., 2020). However, there has been an increase in subscriptions for journalistic content and now approximately one in five (20%) American adults report paying for online news, which is up from one in ten (9%) in early 2016 (Newman et al., 2020). Those who pay for news reports doing so for the quality of the information and to support good journalism. With respect to climate change specifically, global analyses show the majority of people think that climate change is a serious problem and that most people get their climate change news from television (Newman et al., 2020). However, when climate change–related media use is broken down by age, the prominence of television appears to be the result of older audiences paying more attention to climate change news.

These trends are important for understanding how audiences access their news, but we must also keep in mind that there is no single online source or only one television source. Instead, there are many different sources on each platform that are competing with one another for audiences' attention and appealing to audiences' preferences (Cacciatore et al., 2016). News organizations are now incentivized to provide audiences with ultra-tailored media they want to consume. This is the result of a shift in news production to a model where news organizations try to drive high levels of traffic to online stories, instead of attempting to attract a general audience to a set selection of content strategically curated and presented in a newspaper or broadcast (Scheufele & Nisbet, 2013). The transition incentivizes media organizations to narrowcast content to specific groups (Maddow, 2010) and individuals (Scheufele & Nisbet, 2013). Social media companies, like Facebook and Twitter, also try to connect their users with the most 'relevant' content. Algorithms determine what stories and posts specific users will read or 'like' based on various types of data the companies collect.

The overall goal is that audiences spend more time using the platform because they continue to find the content they deem relevant. This results in increased efforts to tailor information to keep audiences engaged and active on the platforms for as long as possible.

However, the increased selectivity and tailoring of information have not exclusively come from news organizations and social media platforms. Individuals are also active participants in creating, or selecting, their ultra-tailored and hyper-selective media diets. For example, people tend to select news sources that align with their political ideology (Stroud, 2011) and are less likely to be exposed to political content they disagree with. Similarly, audiences are also selective about their science and environmental information (Yeo et al., 2015a; Yeo et al., 2015b). In the end, social media platforms are home to many different concurrent conversations about environmental topics, such as GMOs (Wirz et al., 2020). Additionally, news aggregators like Google news and Apple News allow users to set their preferences to tailor and narrow the topics and sources to which they are exposed. The voluntary selection of news and information by sources and preferences further narrows individual media diets.

How individuals use social media can also be a way to create ultra-tailored and hyper-selective media diets. These platforms allow users to construct networks of like-minded individuals or 'filter bubbles' (Pariser, 2011). These homogenous groups can act as 'echo chambers' that further control the information and opinions audiences are exposed to online (Sunstein, 2007). While algorithmic sorting is a key component of how content is presented on social media platforms, the decisions users make online have more of an impact on the selectivity of their media diets (Bakshy et al., 2015). Individuals further exacerbate the tailoring and filtering of information they receive by how they construct their social networks and the platforms they use. Before discussing how these changes in the media and news system relate to misinformation and environmental communication specifically, we provide an overview of how misinformation is defined and what it means in the context of science-related issues.

## Defining misinformation (and related terms) in the context of science and the environment

The term 'misinformation' has grown unfortunately common over the past decade and is frequently discussed in the media, by politicians, and by academics. Misinformation has even become a major concern of audiences around the world, with platforms like Facebook and WhatsApp generally seen as the main ways it is spread (Newman et al., 2020). In the U.S., it has become politicized and those on the right and left of the political spectrum identify politicians as being a major source of misinformation, but those on the right are much more concerned about news outlets as a major source (Newman et al., 2020).

However, the term misinformation is one of a now wide set of related terms with meaningful distinctions. Misinformation generally refers to information that is false or incorrect, which may be unintentional or accidental (Scheufele & Krause, 2019). By this definition, misinformation could be news that was not actually intended to be news (e.g., satirical media, science fiction) or the result of journalistic mistakes (Krause et al., 2019). Conversely, disinformation generally refers to content that was knowingly falsified or made up to deceive its audiences (Lazer et al., 2018; Scheufele & Krause, 2019). The term 'fake news' is often discussed in ways that are more closely aligned with disinformation, but the terms and their uses overlap and are often difficult to disentangle (Lazer et al., 2018).

Despite the increased attention and discussions dedicated to misinformation, and the related terms we outlined above, it is not a new phenomenon (see Krause et al. (2019) for a more

detailed review). Misinformation is also not a new concept for environmental communication. In fact, scholars have discussed the problems of 'false bad news' about the environment for decades (Howenstine, 1987; Simon, 1980). Researchers have studied misinformation in several environmental contexts, such as climate change (e.g., Benegal & Scruggs, 2018; van der Linden et al., 2017), oil spills (e.g., Lemos et al., 2020), and earthquakes (e.g., Kwanda & Lin, 2020). We now offer a series of examples to put the different types of misinformation, as well as disinformation, into context for environmental communication.

We begin by describing a few examples of environmental disinformation, as it provides an important point of comparison for understanding the different types of misinformation. As we discussed earlier, disinformation generally refers to the creation and circulation of content that is knowingly and deliberately incorrect. This can be done to support the goals of its creator, cause confusion and generate skepticism, or damage the credibility or image of another individual or group. For example, a recent historical analysis discovered that as far back as 1980 the American Petroleum Institute had spread information they knew was false and highly misleading about climate change in an attempt to influence policies that favored their industry (Franta, 2021). This example demonstrates how incorrect information has, and can, been used to directly influence policy and communication surrounding the environment.

Another example of creating and sharing deliberately false information related to the environment is the Trump Whitehouse's promotion of a falsified hurricane projection in 2019. In this case, the Whitehouse promoted a map from the National Oceanic and Atmospheric Administration that had been modified to align with statements made by President Trump (Cook, 2019). Together, these examples illustrate the purposeful deceit that is often assumed to be behind both disinformation and misinformation. We next outline several types of misinformation that are not purposefully deceitful nor the product of malintent.

An important source of misinformation for science and environmental communication is a journalistic error. Scientific and environmental issues are becoming increasingly complex and require a great deal of time and skill to translate into news that can easily be consumed by non-expert audiences. However, at the same time, there has been a decline in fulltime science journalists at news organizations (Brossard & Scheufele, 2013). Further complicating the situation, local news in the U.S. has also been struggling to compete with national outlets, and many local newspapers are overstretched and shutting down (Takenaga, 2019). These stresses on the journalistic system make covering complex, technical topics even harder, as journalists who are not trained in the area nor have the necessary experience doing so must cover the science and environmental topics. Even without these additional complications, journalists work very quickly on strict deadlines and mistakes happen. Journalistic mistakes can, unintentionally, generate misinformation. This is by no means a new phenomenon and has attracted academic attention relating to the environment for a long time. In an early study, a researcher analyzed the accuracy of several claims made in news coverage relating to the environment and found several major reporting mistakes in the stories (Simon, 1980). This genre of misinformation presents an interesting challenge for communicators and will require emphasizing the importance of science communication training for the newsroom.

Conversely, misinformation can also take the form of news that was never really meant to be news. This generally covers the production of satirical news and content that is primarily meant to be entertaining rather than strictly informative, which is also known as 'infotainment' (Baym, 2008). There are plenty examples of this content relating to the environment, such as the John Oliver segment on the Green New Deal (McClinton, 2019), articles from the ONION about the U.S. Environmental Protection Agency (the ONION, 2010), and the fictional film *The Day After Tomorrow* (Reusswig & Leiserowitz, 2005). Infotainment

has largely been examined in political contexts, where research has demonstrated that the satirical elements can be taken as factual by its audiences (Cacciatore et al., 2014). As a result, satirical content, and even science fiction, can present important challenges, as well as opportunities, for environmental communicators and researchers.

## The 'misinformation problem' will require more than factcheckers

Even though the fake news problem is not necessarily new, there are several components of our media system that make targeted information, and misinformation, dispersion increasingly effective. Many of the factors at play in the discussions around misinformation, like automated content, source selectivity, and audience targeting, are also not new. In fact, several of these strategies have been used for decades by multiple actors. However, these tools are more precise now than ever before. As a result, preference-based targeting of both fake and real content is more effective (Krause et al., 2020). These changes have created weaknesses in our news environments and social networks where misinformation may thrive. Audiences have made themselves vulnerable to misinformation on a new level with the combination of highly incentivized extreme content production and the increased ability to get this information to specific individuals that want it. These methods of content creation and delivery allow information to bypass editorial scrutiny designed to provide quality control in a free press.

Efforts to counter the spread of misinformation have multiplied. For instance, over the past five years, there has been an increase in factchecking and now many news organizations use factchecking to evaluate public comments and claims and identify falsehoods whenever possible. While these efforts are well-intended and may mitigate some problems with misinformation, they appeal to a 'knowledge deficit' approach in which the goal is to just 'get the facts right.' This approach, on its own, will not be effective. It assumes that the primary problem is that people just have the wrong information and getting the 'right' information will fix the problem. However, it does not address audience motivations and biases that can facilitate the spread and uptake of misinformation (Krause et al., 2020; Scheufele & Krause, 2019). Social science research has demonstrated that people are biased processors and let their motivations and priors influence their reasoning in the face of information (Kunda, 1990; Lord et al., 1979; Yeo et al., 2015a). Audiences' motivations and biases allow misinformation to take root, especially when the stories match our worldviews, give us hope, or are amusing. This is an important layer of the misinformation problem that factchecking alone cannot address (Brossard & Scheufele, 2013; Krause et al., 2020).

Audience motivations are even more complicated for environmental and science-related issues because there is a tendency to select and hold on to the science that supports our own views (Howell & Brossard, 2021; Yeo et al., 2015b). For example, both pro- and anti-GMO arguments are often both presented as being backed by science and studies. This can easily be seen by scanning the internet search results for 'GMOs good' and 'GMOs bad.' Each search result will provide results that offer 'science-based' reasons they are good/bad and point to medical experts and studies that also reinforce their respective stances. Communicators and researchers must be aware of this use of science and not attempt to oversimplify strategies to address misinformation that rely primarily on deferring to 'the science.' Furthermore, we need to move beyond a model in which the goal is for publics to 'just get the facts right' and 'know more about science' to a more nuanced and useful understanding of scientific literacy. We must move toward a model of scientific literacy that emphasizes successfully navigating scientific processes and the interactions of science and society (Howell & Brossard, 2021). In

sum, when attempting to address misinformation we need to critically evaluate the expectations and motivations of all actors, including the scientists themselves.

Communication researchers and practitioners must reflect on the roles that scientists play in communicating environmental science to different audiences. The dissemination and translation of technical information are complicated. Environmental issues are especially difficult to communicate about because they are politically charged, which means that reporting and communication in these contentious waters can lead to problems with misinformation. This raises questions about what role scientists and their institutions should play in communication about the environment. These actors are uniquely positioned to (1) provide quality control of releases and coverage of published peer-review studies, (2) foster institutional change for the recognition of public engagement activities, and (3) train scientists to the science of science communication.

## Conclusion

Misinformation (and related concepts) is a complex challenge in mediated environments that influences environmental communication. The media landscape for environmental communication continues to evolve overall, but media and news diets are highly variable across generations and political party. While this is not a new problem, addressing it effectively will require being able to distinguish misinformation from fake news, disinformation, and bad science reporting. Addressing misinformation will also take more than audience training and increased factchecking because its spread is often facilitated by our motivations and media environment.

Looking forward, there is one especially interesting area of research that needs development regarding misinformation and the environment: How do we simultaneously address issues with incorrect and misleading evidence while also appropriately responding to individuals' perceptions of risk? In other words, how do we develop communication that walks the line between acknowledging the concerns people may have about the environment and addressing the quality of evidence that is being used? These important questions are essential for meaningful, equitable communication and engagement around environmental issues that require the integration of perspective from a wide range of stakeholders (Wirz et al., 2020).

## Further reading

For those interested in learning more about misinformation in the context of the environment, we recommend beginning with Scheufele and Krause (2019). The authors provide a succinct introduction to the different concepts, as well as how they relate to the potential audiences for that information. We recommend following-up with Howell and Brossard (2021) for a more critical discussion about the expectations and perceptions of audiences in the context of science literacy. Together, these two papers will provide readers with a nuanced understanding of misinformation and its implications for environmental communication.

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# 19

# ONLINE CLIMATE DENIALISM

## Eco-systems and echo chambers

*William Dinan, Chiara L. Bernardi, Victoria Esteves and Steven Harkins*

## Introduction

A recent review of the field of environmental communications suggests that the models used for analyses of legacy media are a feature of how the environment in general, and the issue of climate change in particular has been researched (Comfort & Park 2018). Journalistic coverage of climate change is presupposed to have a strong normative commitment to notions of objectivity, meaning both factuality and impartiality (Brüggemann 2017). The ideology and practice of objective value-free journalism have been destabilised in the highly polarised issue culture of climate change. There is also a recognised blurring of the boundaries between journalism and advocacy, with environmental NGOs having a news media and online presence as interpreters of climate science and climate policy while key journalists act as experts, pundits and advocates (Lück et al. 2016; Schäfer & Painter 2021 2021).

It appears that social media is relatively under-researched in the wider field of environmental communications (Comfort & Park 2018; Schäfer & Painter 2021). A systematic review of literature specifically examining social media and climate change (Pearce et al. 2019) suggests that most empirical studies are based on analyses of Twitter (its open application programming interface (API) lending itself to ease of study). These studies are dominated by fairly conventional media studies concerns, spanning audiences and sources and reflect disputes about science and polarisation over the question of climate sciences and responses. Twitter and YouTube seem to be popular dissemination tools for climate change deniers (Shapiro & Park 2018; Moernault et al. 2020), but also for other groups disputing science, including flat-earth believers (de Melo, Passos & Salvi 2020; Olshansky, Peaslee & Landrum 2020) and anti-vaccine proponents (Radzikowski et al. 2016; Song & Gruzd 2017).

Again, following a media-centric approach, there is some work published on the emergence of new online science-media outlets, which specialise in covering issues like climate change. More recently some of these new platforms have invested heavily in fact-checking and rebuttal publishing that seek to expose the flaws in climate sceptical arguments and promote realist understandings of the climate problematic. As much public communication has migrated onto social media platforms, and the internet offers opportunities for self-publishing and audience building by all sorts of non-traditional voices, journalists are confronted with the 'need to decide very concretely what to do with skeptical voices raised

in the blogosphere. Are journalists supposed to quote them in a neutral way or should the voices of denial be ignored?' (Brüggemann 2017).

The climate denialism rhetoric circulating online is, in some ways, related to the wider issue of 'fake news'. The term 'fake news' has been politicised and co-opted into different meanings; here we use it to refer to information that is false, and so is closer in our usage to the concept of disinformation (see Vosoughi et al. 2018; Rogers 2020). Although we lack the space to fully explore this here, it is worth noting that the growth in the circulation of fake news relating to political issues (Rogers 2020: 2) – is a symptom of a wider problem relating to growing distrust of governments, official sources and experts, leading to increasingly polarising views (ibid). It is also important to reference the broader context of online information more generally, which often relies on hyperlinks as a form of referencing; the existence of the link attached to a news story title is enough to make it believable, leading to many readers not even clicking on the link before sharing it on their own page (see Cagle & Tillery 2018).

It appears that a rebuttal or ridicule strategy to deal with climate denial in public discourse has not really produced the results that might have been hoped for by climate realists. Climate denialism has not withered or disappeared. It remains a significant feature of public discourse in many countries. While it may not surface as a respectable position to adopt on the leader pages and platforms of many mainstream publications, it nevertheless exists and continues to circulate as a popular and enduring belief. There are also the findings that many publics have yet to embrace climate mitigation public policies and that a significant proportion of the public in different countries (for instance the US and the UK) believe climate change is or could be a hoax (Uscinski et al. 2017). Ideological preferences and motivated reasoning are common features of the worldviews of those who hold denialist and contrarian beliefs on climate issues (Dunlap & McCright 2008). Such beliefs need to be discussed, shared and circulated in order to be socially significant or have some effect on the world. Research conducted in online environments (notably on anonymous fora) has detected conspiracy talk related to climate science (Lewandowsky et al. 2015; Uscinski et al. 2017) but further research is needed to explore 'how climate conspiracy theories develop in the context of mass media, the internet, and domestic politics' (Uscinski et al. 2017: 26).

Researchers have used Twitter as a proxy for public opinion and a significant site of public discourse, positioning it as a 'snapshot machine' that affords researchers an entree into the dynamic and shifting conversations about public issues and public affairs. There is a tendency to examine the role of influencers and established opinion leaders in shaping debate on issues, including climate. There is a notable gap in the literature on how ordinary citizens and platform users access, negotiate and respond to climate information more generally, and specifically how they encounter climate misinformation and disinformation. Cox (2015) articulates the dilemma of understanding audiences in relation to climate change as follows:

> How, for example, should we characterize the public's ways of understanding climate change within a mediated environment that includes not only social and interpersonal influences, but also a communicative system characterized both by the crisis in traditional news media (newspapers and broadcast television) and … "self-interested information providers" in a new media landscape of social networks, bloggers, and ideological aggregators?
>
> *(Cox 2015)*

## Climate change mis-information and dis-information networks and computational methods

Research on media coverage of climate change has traditionally focused on western economies and prioritised anglophone realities to analyse and map climate change denial (Bohr 2020). Adopting concepts of 'framing' and 'echo-chambers' (Ciampaglia 2018; Tyagi, Uyheng & Carley 2020), the focus has been on the logics behind the rhetorical clash between the climate change 'convinced' and 'skeptics' (Hoffman 2011: 8; Jang & Hart 2015; Dahal, Kumar & Li 2019a).

The widespread interest toward the application of computational techniques to societal issues has contributed to increase the discussions on the topic by including reflections on the role of big data in understanding the polarisation of discourses on climate change. Two major strands emerge in available literature about computational methods employed to trace, map and understand climate change denial and its diffusion online. One strand tends to be more data-driven and focused on innovative methods. Large data sets are compiled and analysed to train and test machine learning algorithms; climate change has been used as an important and critical case study (Tyagi, Uyheng & Carley 2020; Xia, Chen & Kivelä 2020; Quinn & Baker 2021). Such work tends to use unstructured social media data and the findings reported to date speak to methodological innovation rather than wider contributions to understanding climate change denial networks and their diffusion.

Another strand, one that is more theory-driven, aims to enrich current discussions about climate change denial *through* computational methods. This specific strand is especially important because it sheds lights on the ontological differences between disinformation, misinformation and denial networks (Treen, Williams & O'Neill 2020), and proposes an interdisciplinary understanding of climate change denial (O'Halloran et al. 2018; Brower et al. 2019). There appear to be two major applications of computational methods: on the one hand, computational methods are employed to enrich and further corroborate literature on risk representation and framing, and aimed at uncovering how echo-chambers form discourses on climate change denial (Harvey et al. 2018; Adam et al. 2020; Bohr 2020; Treen, Williams & O'Neill 2020); additionally, computational methods are applied to identify and visualise how denial networks intertwine with philanthropy, civil society organisations and institutional bodies (Michalewicz et al. 2006; Farrell 2016b, 2016a, 2019; Carroll et al. 2018; Treen, Williams & O'Neill 2020; Doreian & Mrvar 2021). With few exceptions, the majority of the studies reviewed employ the same tool-box of computational methods: topic modelling, sentiment analysis, geographical distribution of text (mainly used to analyse tweets) and social network analysis (SNA).

### *Data driven? Climate denial and big data*

One strand of the existing literature on climate change denial focuses on identifying and automating the detection of polarised sentiment within big data sets. Climate change is seen as a suggestive topic and an objective of such research is to train custom algorithms to label tweets based on their polarisation. For example, research using a Twitter data set consisting of 38 million tweets from 7 million account handlers attempted to 'unpack how group-level metrics produce asymmetrical views of hostile behavior, thereby facilitating more fine-grained analysis of how different stance groups engage in varied levels of affectively polarized interactions' (Tyagi, Uyheng & Carley 2020: 3). Using Netmapper, the authors clustered tweets in groups of 'believers' and 'disbelievers' by understanding the polarisations of each

word within the tweets in relation to other words within the same tweet and within the data set.

Building upon elite-led polarisation literature, one study analysed over 5 million tweets produced in 2019 when rumours about a possible Nobel Peace Prize award to Greta Thunberg circulated on social media. The authors' objective was to identify how communities resembling echo chambers form when tweets 'from core members of the group spread to the periphery' (Xia et al. 2020: 4).The results confirmed that the observed spreading mechanism, coupled with homophily in the sharing network, contributes to constructing echo chamber structures that seem to be a recurring finding in media research of climate discussions (Williams et al. 2015).

Jang and Hart (2015)compiled a data set of over 5 million tweets and a set of issue frames and associated search term strings. Their computational analysis introduced five frames emerging from tweets: real frames (which included key terms such as real or fact), hoax frames (which included terms such as hoax, lie or fraud), impact frames, cause frames (with terms that included fuel or CO2 or human), and, lastly, action frames (which included terms such as action or fight). Theirs was a cross-country analysis of Anglophone tweets to overcome the 'scarcity of empirical research on framing in interpersonal conversations' (Jang & Hart 2015:16). The research found that the key term 'global warming' was more likely to be used in relation to hoax frames than 'climate change', which offers some support for research which identifies similar patterns in conventional survey research (Whitmarsh 2009). Moreover, denialist discourse and hoax frames were more evident in the US than the other countries studied (UK, Canada and Australia), and this pattern was more pronounced in conservative-leaning states within the US. There is therefore a direct point of contact between this research and work which examines how such discourses are part of wider socio-cultural questions about political values and identity.

Methodological contributions to data-driven climate change research do not only consist of large and unstructured data sets and do not solely rely on computational methodologies. For example, Dahal, Kumar and Li (2019b) used a slightly smaller data set consisting of 390,016 tweets from July 1, 2016 to February 28, 2018 and carrying keywords such as 'climate change', 'carbon dioxide', 'fossil fuel', 'carbon footprint' and 'emissions' to determine sentiment and geographical distribution of tweets. Their results highlighted the relevance of Anglophone tweets and suggested that climate change discourse as seen on Twitter originates predominantly from accounts in the global north. The paper also identifies that the most contentious discussions about climate change originated from the US, especially after the decision of President Donald Trump to withdraw from the Paris Agreements in 2017.

Likewise, Anderson and Huntington (2017) proposed quantitative content analysis of 4,094 tweets about the 2013 Colorado floods to identify sarcasm and incivility online, while Williams et al. (2015) undertook a longitudinal survey of perceptions of anthropogenic causes of climate change. The researchers, who ran 23 different interviews in New Hampshire over a period of five year, identified a consistent belief in scientific evidence rather than disbelief or skepticism.

## *Theory-driven computational analyses*

Scholarship-based computational analyses to map and understand climate change denial very often focus on the role of media frames. However, there is a related literature that seeks to understand how and in what terms the scientific evidence of anthropogenic causes of climate change can still be questioned. Unlike the data-driven literature previously discussed, the

corpus in this specific category uses computational methods as tools of analysis and discovery. Of particular interest is the diversity of data that are used in scholarly research clustered in this category and the role that qualitative analysis plays in preparing and confirming computational methods.

Brüggemann et al. (2020) qualitatively analysed 50,000 blog posts between 2016 and 2017 during the first 100 days of Trump Administration. Their aim was to identify patterns of 'hoax discourses' or 'communication that entails calling into question the truthfulness of someone else' (Brüggemann et al. 2020: 3). Theirs is the first study to distinguish 'climate change denial' from 'hoax discourse' and extensively study the role that blogs and bloggers play in the construction of such discourse. Using SNA, the authors built the 'network of accusation' in the hoax debate linking bloggers, usually the 'accusers', to a number of actors (from journalists to scientists) normally serving the role of the 'accused'. The study further identified a continuum in the hoax discourse that went from stern denial of anthropogenic causes of climate change to questions on the economic consequences of strict applications of climate change protection and mitigation policies. The methodological complexity of the study is coupled by the theoretical framework that combines frame analysis, identity theory and the revisitation (or problematisation) of Habermas' concept of the public sphere.

Harvey et al. (2018) used blogs to identify denial networks focusing specifically on how the disappearance of polar bears is discussed on Anglophone climate change denial blogs. This study also identifies a denial continuum: from stern rejection of the disappearance of polar bears, to the acceptance that evolution will naturally lead polar bears to disappear or adapt based on the animal's survival abilities. Bohr (2020) examined how news media framed climate change and questioned its scientific validity by analysing American local and regional newspapers from 1997 to 2017. Employing sentiment analysis and topic modelling, the study is one of the few to cover outlets based on their circulation and geographical distribution rather than a priori selecting conservative outlets. The study identifies a peak of interest in climate change in the late 1980s, and again in the 2000s. The findings suggest a decrease in press coverage of unsubstantiated claims of natural causes behind climate change.

Moving away from Anglophone denial networks and shifting toward the application of computational methodologies to analyse climate change denial in different languages, Adam et al. (2020) produced the first cross-media analysis of climate change misinformation networks in Germany. Recognising the potentially significant impact of misinformation on public attitudes, the authors of the study posited that there might be connections between online communication of climate skepticism and traditional media coverage. Their comparative cross-media analysis explored how online climate change skepticism can resonate, under certain conditions such as with the publication of new scientific reports' with publics in a country that tends to prefer moderate political positions on the topic. The research design relied on a form of snowball sampling, starting from 'hyperlink issue networks that originate from prominent counter-movement actors'. This research identified 'a total of 46,901 skeptical actors, 443,452 advocative actors, and 411,955 actors without a clear position on climate change in our corpus' (ibid). Framing climate change skeptic networks as 'counter-movements' that attempt to shift 'central organizing idea[s] or story line[s] that provide [. . .] meaning to an unfolding strip of events' the authors analysed over 13,000 online web pages of climate skeptical websites and 4,000 articles of national newspapers between 2012 and 2014. Their findings indicate that sceptical positions became more radicalised over time (Adam et al. 2020: 13). However, the results also showed a clear distinction between the dominant public discourse in Germany on climate (conducted in mainstream media and many online for as well) and those pockets of online media where climate change skepticism

is present. The latter may serve as an online 'reservoir of ideas' from which skeptics can draw from whenever there is an opportunity to enter wider public debate.

Lastly, there is literature employing computational methods to map the industry of climate change denial (Cook 2020), or the connections between climate change denial and corporate interests. Farrell (2016b, 2016a, 2019) has produced the most complete corpus analysis on oil companies' participation in the climate debate and influence on public opinion. Farrell (2016) and Carroll (2018) employed natural language processing and SNA to identify the relationship between denial networks, corporate interests and civil society in the US and Canada, respectively. Both studies attempt to demonstrate the links between industry-sponsored philanthropy and other forms of influencing activities, and 'large scale production and diffusion of misinformation about climate change' (Farrell 2019: 1). Using the Philanthropy Roundtable as a sampling frame of philanthropic activities in the US and the Internet Archive, Farrell built a list of 52,994 people and 41,594 organisations connected to the Philanthropy Roundtable between 1997 and 2017 with the aim to evidence the connection between 'climate contrarianism' and 'moderate and right-leaning philanthropy', and predict why some actors from the derived misinformation network have been more successful and better integrated into the philanthropic circle than others (Farrell 2019: 3).

Unlike Farrell, who has focused on philanthropic networks of misinformation about climate change, Carroll's work follows the interlocks between carbon capital sectors (238 organisations) and key knowledge producing Civil Organisation Societies in Canada. Their work identified 'soft' networks of denial, revealing connections between oil-producing corporations, universities, policy planning organisations and institutional bodies such as the Business Council of Canada (Carroll et al. 2018). One of the key empirical challenges facing the research and policy community is to better understand the connections between these identified sources of climate misinformation from above, and how such ideas circulate among publics and shape belief and action. To explore this, we can begin to examine the existing literature on digital publics and the question of climate change.

## Digital publics, online disinformation communities and networks

Digital publics are made visible through the interactions that take place within their platforms (Baym & boyd 2012), which allows us (although only partially) to have some understanding of how groups and communities think and feel about issues like climate change. Anthropogenic climate change and global warming appear to be a somewhat divisive topic among the broader public, as evidenced by the visible interactions of digital publics on online platforms.

Whilst the internet can harbour extreme political views (Gerstenfeld et al. 2003), ideological segregation is lower in online news consumption when compared to consumption of offline national newspapers (Gentzkow & Shapiro 2011); Twitter users also lean towards moderation (Barberá 2014). Nevertheless, there *are* spaces online that continuously echo niche and extreme political views – the question of why this is the case and how particular ideologies and worldviews come to find a home in certain online circles, then, still remains unanswered. This is particularly pressing with regards to discussions around climate change, which seem to be significantly polarising both offline (Smeltz et al. 2015) and online (McCright & Dunlap 2011; Moernaut et al. 2020).

Much like the case with offline spheres, the internet's discursive arenas also operate through the use of (mediatised) opinion leaders (Schäfer & Taddicken 2015) who influence perception and discussion of political issues online and 'are likely to rely on much more

ideologically extreme information sources to shape their attitudes and behaviors than the rest of the public' (Guess 2020: 30). With the rise of weak ties through social media, the role that opinion leaders may play in these tenuous forms of interaction (e.g. hashtags) within the context of climate discussions requires further research.

Despite the prevalence of climate denialist discussions on weak tie spaces like Twitter, the formation of a sense of online community emerges as a by-product of climate denial discourse, as 'climate skeptics' arguments serve to both amplify their message and legitimize their existence against an oppositional mainstream scientific community' (Bloomfield & Tillery 2019: 24–25). Although climate denialism is mostly rejected in scientific and mainstream media arenas, its proponents can represent a vocal minority that may appear amplified to online users. This is in line with most of the opinion perceptions circulating in spaces like YouTube, where online discussions can become dominated by a small number of people who are able to distort overall perceptions of public discussions that take place within online spaces, including dialogues about climate (Shapiro & Park 2018: 116; Allgaier 2019).

Online spaces harbour communities that echo positions contrary to established science, including climate change sceptics (Matthews 2015). The immediate, accessible and unique aspects of online communication (e.g. hyperlinks) contribute to the ease of proliferation of these views (Bloomfield & Tillery 2019: 25–6), the later providing a sense of uniformity and non-discriminatory approach to information. Digital publics are, in essence, networked publics and animate much of what we now might conceptualise as the contemporary public sphere (Kaiser et al. 2017). However, our focus is not on the technological possibilities that underlie these networked publics but the cultural and communicative aspects that grow from these spaces. In order to better understand the circulation of denialist discourses, it is important to have an understanding of the logics of online community.

Online communities are a mainstay of the internet; much like Anderson's (1983) concept of imagined communities that describes the ideal of nation as a social construction that unites members in their perception of their belonging to the whole, online spaces can also provide this perception, where a comparable logic is applicable to the imagined communities present online, denoted through the concept of social media's 'imagined audiences' (Litt & Hargittai 2016). There is strength in visibility, which is one of the key characteristics of online communication within social media (boyd & Ellison 2007), making social interaction visible and retrievable. Due to the visible nature of these interactions taking place in social media among users, there is a heightened opportunity for (both real and perceived) public engagement that is difficult to replicate outside of a mediated sphere (Baym & boyd 2012: 322). As a sense of online community emerges within these digital spaces, an identity is also forged; for climate change denialists this is in part reliant on the antithesis of climate change advocacy (Bloomfield & Tillery 2019: 25).

In order to understand the appeal of the climate denialism, it is useful to acknowledge the multiple social and psychological processes involved (Santos & Feygina 2017) and the associated linguistic and discursive aspects that often underscore denialist rhetorics. As Ferree et al. note: 'Polemical speech acts or symbols that capture the emotional loading of public issues as well as their cognitive content can play a very important mobilizing role' (2002: 316). In fact, the key role played by emotion with regards to science communication (Flemming et al. 2018; Shriver-Rice & Vaughan 2020: 6) is particularly relevant within the context of climate, as effective deployment of emotion can also impact attitudes towards ecological issues (Smith & Leiserowitz 2014; Bloodhart et al. 2019). The appeal to emotion is not exclusive to denialist rhetoric and can also be found in climate change believers (Poberezhskaya 2018: 946; Bloomfield & Tillery 2019), as well as being a tool that is often employed in science

communication (Shriver-Rice & Vaughan 2020: 6). This is also visible at a broader level of online communication, as potential for emotional response (positive or negative) is one of the factors that drives the sharing of online content and its virality (Berger & Milkman 2012). Aspects surrounding the role of language in this process of community making itself are also worth considering; Bloomfield and Tillery (2019) identify the *topoi* being used in climate change denialist networks, though they also note that while *topoi* can be used to forge an anti-mainstream identity, the kinds of *topoi* being used don't always overlap among different online communities of deniers (2019: 25), which raises questions of uniformity.

These communities are often dependent on a careful balancing act between rejecting science whilst also co-opting the form of scientific logic to legitimise their claims (Ceccarelli 2011; Bloomfield & Tillery 2019: 30). This contradictory logic is also applied to a range of other anti-establishment niche views that flourish online such as the anti-vaccine (Kata 2012: 3781) and flat earth movements (Paolillo 2018). Characteristically the basis of scientific reasoning and questioning is invoked, claiming that this is lacking from the current scientific community (see Bloomfield & Tillery 2019: 30). Whilst tired of experts (Giddens 1991), these groups nevertheless adapt expert rhetoric for anti-scientific claims.

Since being made widely accessible to the public, the internet has carried promises of extending the role of the public sphere (Dahlgren 2005); with the particular affordances and interactive possibilities allowed by the network also leading to the reconsideration of the concept itself (Kaiser et al. 2017: 1). With the democratic affordances of online participatory culture comes an aspect of empowerment (Bruns 2008) which is also found in the participatory process of engagement with public spheres (Kaiser et al. 2017: 5).

Climate denialist spaces can be seen as a form of 'subaltern counter-publics', which in turn are defined as spaces 'where members of subordinated social groups invent and circulate counter discourses, which in turn permit them to formulate oppositional interpretations of their identities, interests, and needs' (Fraser 1990: 67). Whilst Fraser discusses this concept in terms of minorities that are forced to carve their own discursive spaces, there are similarities that can be drawn between the idea of counter-publics and climate deniers (Kaiser 2017; Moernault et al. 2020). Climate denialism itself is also entwined with a sense of identity (Shriver-Rice & Vaughan 2020: 8), which can act as a protective shield against perceived attacks on self-identity (and associated cultural privilege) that can arise from facing questions of personal responsibility in anthropogenic climate change (Jaspal et al. 2014: 123). Here, we can also consider the role of identity formation within the public sphere (Calhoun 1992). Counter-public identity formation and community building within the socio-technological framework of online spaces occurs within a wider cultural shift regarding public contestation or delegitimisation (Sharman 2014) of claims to expertise and the assessment of complex evidence. It would appear that for some contrarian and denialist groups the active contestation of expertise is part of their online identity and is a feature of their collective sense of purpose.

## Discussion

The production and circulation of climate denial rhetoric continue to attract scholarly attention. The uncritical acceptance of denialist claims in mainstream media would appear to be increasingly rare, although most research is focused on English language outlets, and the US remains something of an outlier compared to other developed nations. However, how such ideas are shared across digital networks and what impacts this might have arguably remained under-researched. There is now an emerging body of work that does examine the

role of social media and digital platforms in climate change discourses. The findings of such scholarship suggest that contrarian ideas may be more widespread (Yan et al. 2021), visible ('strategic hyperlinking' Adam et al. 2021) and enduring than climate realists might like to believe. Such findings would appear to be compatible with opinion polling that continues to detect climate scepticism, albeit waning in many countries over the past decade as the climate emergency is increasingly acknowledged by political and economic actors and by publics across the globe (UNDP 2021). There is research which suggests that people tend to underestimate belief in climate change (Jost 2018) but there is also considerable variation, geographically and socio-politically, in mapping climate discourses to climate opinions (Bennett et al. 2021).

One of the questions that emerge is how important are the sources of climate denialism? It appears that a significant feature of the climate change debate is that much climate disinformation comes from above, that is, from elite sources and opinion makers. The most obvious examples of this are the climate denialist policies followed by the Trump administration, which reflected a strand of opinion in US neo-conservatism and Republicanism that predates Trump's presidency. Outside the US, there are other notable denialists in positions of power – Bolsonaro in Brazil, and factions of the current UK government spring to mind – and when the net is cast slightly wider to include policy actors and business and economic elites – the availability of dubious climate claims is clear. The role of libertarian and conservative think tanks in building a climate-sceptical epistemic community (Plewhe 2014) and promoting such ideas to media and policy makers is reasonably well known (Jacques et al. 2008; Miller & Dinan 2015). However, perhaps a more pressing question when thinking about the sources of climate disinformation, and their communicative power, is where does the fossil fuel industry fit into this picture? Again, the role of corporate disinformation in relation to climate has been a focus for scholars (Farrell 2016a; Supran & Oreskes 2017, 2020). Brulle (2019) has analysed the Climate Change Counter Movement (CCCM) in the US, looking at how different business sectors, trade associations, think tanks and foundations coalesce around the issue of climate policy. While the network is identifiable, the impacts of their advocacy work require further analysis, both in relation to elite and broader public opinion:

> How does this coalition network interact in the larger organizational fields in which these coalitions are embedded…[this] includes foundations, public relations firms, and lobbying firms. Further examination of these interactions would start to fill in how this entire countermovement is structured. Additionally, the CCCM is embedded in a much larger political field, which includes government agencies, the climate change movement, renewable energy sector organizations, labor organizations, political parties, and the media.
>
> *(Brulle 2019: 18)*

How do these organisations communicate with their stakeholders in relation to climate issues? Do they provide important cues and prompts for thinking about climate for journalists, policy makers and interested publics? And how might these organisations operate as sources for climate discourse across the blogosphere and social media platforms? This also raises the wider question of assessing corporate disinformation as denial. The attentive reader will have noticed that we have deliberately avoided defining climate denial, contrarianism or indeed climate realism in the preceding analysis. As the stakes around climate politics are raised, with increasing civil society mobilisations, the terms under which climate policy is debated and legislated will be subject to considerable scrutiny. Some NGOs are already pressing for

the exclusion of the fossil fuel industry from climate negotiations. The 'business as usual' model of climate politics and brokerage is under pressure, and both radical and mainstream environmentalists are seeking to disrupt the corporate capture of climate policy making. This contestation will doubtless invoke, but also perhaps try to shape, public opinion to underpin their competing claims.

Given that social media platforms are so heavily influenced by visual styles and rhetoric there would appear to be opportunities for examining images and memes more centrally in research designs concerned with public understandings of the climate problematic. There may be a requirement for smaller studies to complement the big data and computational approaches sketched above. This is clearly part of the research agenda for scholars interested in understanding the persistence of denialism, and its consequences.

In order to gain a full understanding of the context behind the climate denialism that circulates online, it is important to take into consideration not only technological affordances and political stances, but also social and cultural facets that surround these aspects of online communication, community and identity. There are some very promising research designs emerging, which seek to make use of big data to understand how climate change in general, and climate denial in particular, is communicated and shared. Much of that work remains anglophone, and there is a need to expand such work to include other languages. There is also a preponderance of studies based on Twitter. The challenges of researching these issues on social media platforms should not be underestimated, but neither should we be defeatist about the practical obstacles.

## Further reading

Bloomfield, E. F., & Tillery, D. (2019). The circulation of climate change denial online: Rhetorical and networking strategies on Facebook. *Environmental Communication, 13*(1), 23–34.
This study expands on how the rhetoric of climate change denial circulates online by analysing sample of posts from known climate denialist Facebook pages (e.g. *Watts Up With That* and *Global Warming Policy Forum*). The authors identify the *topoi* and communicative strategies employed by these groups, which denote a discernible co-option of scientific tactics in order to give the appearance of credibility.

Samantray, A., & Pin, P. (2019). Credibility of climate change denial in social media. *Palgrave Communications*, *5*, 127. https://doi.org/10.1057/s41599-019-0344-4
This article empirically explores polarisation of beliefs on social media (Twitter) in relation to climate change. The findings confirm that information is trusted when the sources are trusted; homophily only appears to play a role when the source of information (fake or real) has at least some degree of credibility. The article is useful because it offers a detailed account of the research design around sentiment analysis and the assumptions that underpin how key concepts are operationalised. The data used is also available for secondary analysis.

Shriver-Rice, M., & Vaughan, H. (2020). What is environmental media studies? *Journal of Environmental Media, 1*(1).
A succinct introduction to the basic concepts and ideas underpinning the emergent field of environmental media studies. This also provides a good overview of the remainder of this issue, as it weaves together its various interdisciplinary strands – social justice, environmental communication, identity and the role of technology within the broad topic of climate change.

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# 20

# REPRESENTATIONS OF THE ENVIRONMENT ON TELEVISION, AND THEIR EFFECTS

*James Shanahan, Katherine A. McComas and Mary Beth Deline*

In 2013, the American public ranked climate change at the very bottom of 21 policy issues that it believed the President and Congress should deal with; another poll found that 2013 represented the lowest year for environmental concern since polling on the topic had begun over 20 years ago (Globescan, 2013; Pew, 2013). Yet in 2019–2020, polling showed that Americans were consistently agreeing that climate change was a major top-three issue, with some US politicians coming around to re-participating in global climate accords such as the Paris agreement as a full partner (APA, 2020). Survey research from Yale University revealed that virtually every county in the US could be projected as having a majority belief that "climate change is happening," with 72% as the calculated national average.[1]

In many ways, the decade since 2012 has seen tipping points in terms of public opinion on environmental issues. Previous research on the relationship between media exposure and environmental concern looked at problems such as the media's presumed inability to keep public attention focused on the issue. Now, however, we must concern ourselves with queries related to the unquestioned greater prominence of the environment as a topic of public concern, and wonder: Did the media play a role?

In this chapter, we look at the role of television in this regard. Television is an important influence on the development of attitude, and given the context of what was long-term apparent indifference toward environmental issues, and the now-greater level of concern, it is prudent to revisit research into portrayals of the environment on American commercial/ entertainment television. Does what television says about the environment have anything to do with what we think about its problems and solutions?

This chapter starts by reviewing a research program that began in the 1990s (see Shanahan, 1996; Shanahan & McComas, 1997; McComas et al., 2001) that has been revisited sporadically. The research was conceptualized in the late 80s and reached the first period of fruition in the mid-1990s, as an extension of the Cultural Indicators project, which itself began in the 1960s. The Cultural Indicators project gathers data on how television represents the world and uses "cultivation theory" to explore television's impacts on public perceptions (Morgan et al., 2009). Cultivation theory essentially states that heavier viewers of television will be more likely to hold conceptions of the world that are consistent with TV portrayals than lighter viewers (Besley & Shanahan, 2004; Good, 2009;

Morgan & Shanahan, 2010, 2017). In revisiting and revising the work on environmental issues from a Cultural Indicators perspective, we first review the original findings and then discuss some new findings about cultivation theory and media attention in relation to the environment.

## Cultural indicators research and the environment

Narratives are stories that portray a timed sequence of events (Jones & McBeth, 2010); the stories that we are exposed to, over time, combine to create a cultural gestalt that both guides and reflects our norms, roles, and customs (Morgan & Shanahan, 2010; Howard-Williams, 2011). The idea that a message "system" (one based on stories) plays an important role in a culture – especially one that incorporates mass communication – was at the heart of the original Cultural Indicators research (Gerbner & Gross, 1976). The message system is what is consistent and repetitive within stories, and this consistency is what is important to the culture; television has normally been seen as the institution contributing the most to that system. More recent advances in cultivation research are broadening traditional cultivation approaches, through attention to different channels (Facebook) or different forms of content (infotainment) (Tsay-Vogel et al., 2018; Pelzer & Raemey, 2020).

In the environmental sphere, the idea from Cultural Indicators research is that television stories and message systems contribute to the Dominant Social Paradigm (DSP): "a system of shared beliefs 'upheld by the constant repetition of ideas that fit within it'" (Howard-Williams, 2011, p. 28, quoting Meadows, 1991, p. 74). The DSP is the system of norms and ideas that privileges material and economic growth over environmental sustainability. Television's focus on this growth, and its material consequences, has been seen as maintaining and reproducing an anti-environmental DSP.

Watching television is America's preferred leisure activity (U.S. Bureau of Labor Statistics, 2021). In addition, most of the television consumed is entertainment oriented (Mutz & Nir, 2010; Nielsen, 2021) so examining TV entertainment programming's stories and cultural content related to the environment appears to be a worthwhile undertaking.

Findings concerning the overall amount of exposure to such cultural products and the effects of such exposure on policy interpretations are informed by cultivation theory. The theory looks at how exposure contributes to cultural stability through shaping and maintaining the worldviews of viewers (Gerbner & Gross, 1976; Morgan & Shanahan, 2010). The theory was among the first to explicitly examine how media narratives affect the political environment, and it continues to be highly cited in studies of mass communication (Morgan & Shanahan, 2010, 2017; Mutz & Nir, 2010). Operationally, Cultural Indicators research consists of three types of analysis – "institutional process analysis" that examines message construction in light of media organizations' opportunities and constraints; message system investigations that examine cultural patterns in content; and cultivation analysis, which looks at the relationship between these institutional and message portrayals and the public's attitudes (Morgan and Shanahan, 2010).

Our research into portrayals of the environment was originally published in 1996 using data collected from 1991 and 1993; the last year that content was culled for analysis was 1997. The research was discontinued at that point (McComas et al., 2001; Shanahan, 1996). After that, up to the time of the first writing of this chapter, remarkably little research had systematically documented how the environment is depicted on TV, even though there were quite a few studies that examined journalistic portrayals or individual

types of programs. And since the first writing of this chapter, there is again little research that empirically documents the portrayal of the environment on entertainment TV. This leads to the question: on TV, what has stayed the same over that time period, or has anything changed?

Our earliest findings showed that environmental and natural images appeared rarely on prime-time TV (Shanahan, 1996). This finding was replicated again in subsequent analyses of television content from 1991–1995 and 1991–1997, where nature occurred as a "predominant theme" in only about 2% of programs in both time series (Shanahan & McComas, 1997; McComas et al., 2001). Both analyses also found separation between the "human" and "natural" domains on TV, with the majority of programs focusing on relationship or law/crime themes (Shanahan & McComas, 1997; McComas et al., 2001). Turning from nature themes to environmental "episodes," (actual instances of environmental issues being dealt with, within TV programs), we found that such episodes were largely absent from our sample (Shanahan & McComas, 1997; McComas et al., 2001). Findings from the last analysis of 1991–1997 (McComas et al., 2001) in particular found that environmental episodes most often referenced "general" issues or issues related to waste disposal, that the majority of the few environmental representations we found were "neutral" or "concerned" expressions by characters, and that whites were involved in the majority of the episodes where concerns were expressed (McComas et al., 2001).

## Other content analyses of the environment on TV

There is still only one other content analysis focusing on this area, to our knowledge, as of 2021. Howard-Williams (2011) examined both news and non-news programming in New Zealand for four television channels. This analysis found that nature as a theme was completely missing from over 60% of non-news programs, and that it occurred as a primary theme in less than 10% of the non-news programs; these are somewhat higher figures than our American studies. In addition, nature and scientific values themes tended to occur together, while (and this is similar to the American findings) natural and relationships/sex themes were usually separate. In other words, television seems to conflate environmental and science themes, and separates them from dominant programming themes like relationships, crime, and sex. The most frequently seen type of environmental episode was the same as in our American findings: "general nature." This was followed by (differently from our findings) "sustainability" and "green living." Environmental episodes were often situated to promote the purchase of "green" goods and services (Howard-Williams, 2011). It seems that New Zealand media offer a few more representations of the environment in their TV programs, but the structure of the themes is roughly congruent with American television.

## The 2000s

To update our findings from the 1990s, and given the paucity of other studies that have collected these sorts of data, we updated our own data collection with a sample in 2012; we collected data on 78 programs. These were the same programs that were coded for the ongoing Cultural Indicators research project (see, for example, Morgan et al., 2012); they were prime-time programs from major broadcast networks (ABC, CBS, NBC, Fox and the CW). The sample was structurally similar to the ones we analyzed in the 1990s, with the addition of programs from Fox and the CW (see Shanahan & McComas, 1999, for details).

*Table 20.1* Percentages of Programs Focusing on Selected Themes in the 1990s and in 2012

|  | *"Nature" 1990s* | *"Nature" 2012* | *"Personal relationships" 1990s* | *"Personal relationships" 2012* | *"Family" 1990s* | *"Family" 2012* |
|---|---|---|---|---|---|---|
| Theme is absent | 79.2 | 84.6 | 37.8 | 42.3 | 25.7 | 41 |
| Theme is minor | 13.1 | 3.8 | 18.8 | 10.3 | 19.8 | 5.1 |
| Theme is secondary | 5.7 | 6.4 | 21.8 | 11.5 | 22.4 | 7.7 |
| Theme is primary | 2 | 5.1 | 21.6 | 35.9 | 32.2 | 46.1 |

*Note*: N of programs in the 1990s = 510. N of programs in 2012 = 78.

Table 20.1 shows the frequency of themes that appeared in this 2012 sample, comparing the frequencies to those we observed in the 1990s. As can be seen in the table, attention to environmental issues overall remained at a similar level from the 1990s to the 2012 sample. That is, most programs dealt with environmental issues not at all; the remaining dealt with the environment in minor or secondary ways. This confirmed and replicated what we saw in the 1990s. The total number of "episodes" (identifiable substories, plots, themes, or events within programs) that dealt with environmental content was 18. Thus, across 71 hours of programming, there were 18 identifiable episodes dealing with environmental issues. Most of these episodes lasted less than a minute. By our computation, about 28.5 minutes out of these 71 hours of programming dealt with environmental themes; this is somewhat similar to the estimate we gave for programs in the 1990s.

Most of the other attributes of the environmental themes were also similar to what we observed in the 1990s. Environmental themes were often kept separate from the main themes of family, relationships, crime and sex that dominate entertainment TV. While this may surprise few who are inveterate television watchers, it's worthwhile to note that the world of commercial television is much as Bill McKibben described it in the early 1990s: "TV, and the culture it anchors, masks and drowns out the subtle and vital information contact the real world once provided" (1992, pp. 22–23).

The landscape of American network entertainment TV in 2012 was similar to the 1990s with respect to environmental issues. Of course, since the 1990s other networks appeared that took on environmental themes with more frequency, especially the science- and nature-oriented cable networks such as NatGeo or Animal Planet (see Seelig, 2019 for a review). But even these networks were and still are subject to the inexorable logic of narrative competition that drives them toward human interest and reality programming as much as any other network. Even though the environment became an issue that wouldn't go away, it had not pervaded the culture enough to infect day-to-day entertainment programming at more than a minor level.

There have been few analyses by other researchers after the 2012 one that we conducted. The complete dataset from the Cultural Indicators project concluded in 2015. In some sense this represented the final closing out of the era of network television, with the ascendance of streaming services and social media. Across that entire dataset, and up unto 2015, we can see that nature or environment remained a minor theme on network TV. Figure 20.1 shows that topics such as environment, science, and health were rarely the focus of entertainment TV, compared to other topics such as family and crime.
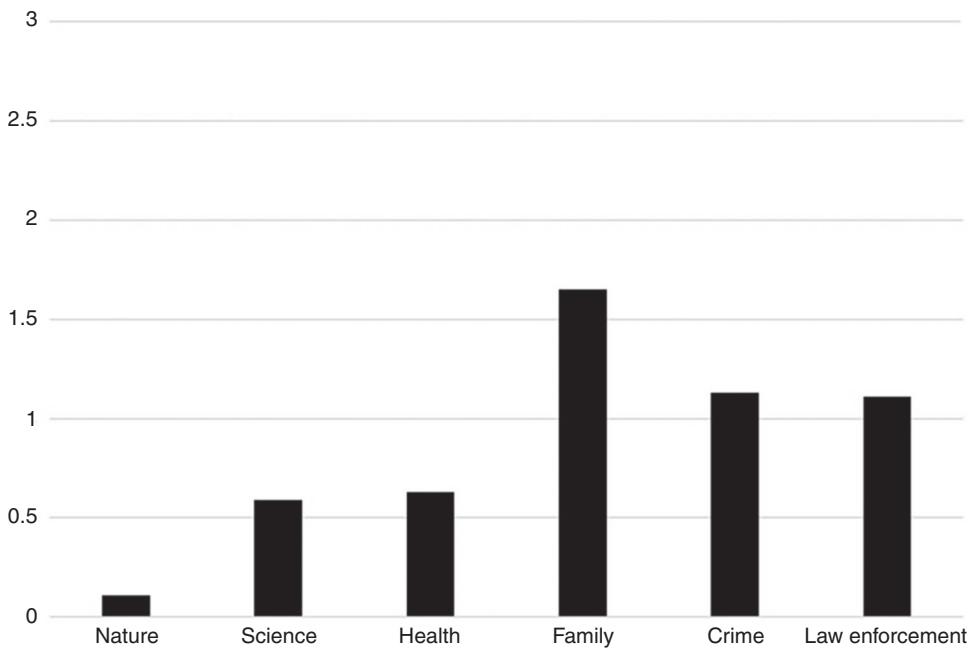
*Figure 20.1*   Prominence of Themes in Entertainment TV, 1967–2015 (0 = Not At All Prominent; 3 = Major Theme)

## Cultivation of beliefs about the environment

As part of our early research on TV and the environment, we also looked at the cultivation of environmental attitudes by television viewing. These results, along with the content findings, were summarized in various publications (see Shanahan & McComas, 1999). Overall, our findings were that heavy television viewers were less likely to show concern for the environment. These findings represented the first real attempts that were made to look at relationships between exposure to the message system and environmental attitudes, and they embodied a somewhat "orthodox" approach to the way that cultivation research is usually conducted. Our conclusion then was that the absence of the environment on television represented a "symbolic annihilation" that would lead to lower concern among heavy viewers (see also Good, 2016).

We know now that the picture is somewhat more complex. After our original studies on cultivation of environmental concern, other investigators both broadened and sharpened the research. One study found that environmental attitudes guided television genre choices, predicting the use of television nature documentaries and news, but not fictional television (Holbert et al., 2003). That is, attitudes form viewing preferences, as opposed to the traditional conceptualization where viewing "affects" attitude. A second study (Dahlstrom & Scheufele, 2010) found that overall TV exposure was related to concern about environmental risks, but when a measure of exposure *diversity* was introduced (which examines how many different types of content the person watches) it reduced the TV exposure-attitude relationship to non-significance.

Good (2007, 2009, 2013) shows that TV exposure is associated with "materialism" and that heavier viewers of television (including environmentalists) become less concerned about the environment, by virtue of this materialism. Her point is not that TV makes people less environmentalist "directly," it is their materialism that brings this about. She notes that three rationales are typically given for an environmental cultivation effect:

1    more television viewing means less time experiencing the outdoor environment;
2    "symbolic annihilation," as discussed above; and
3    television's focus on materialism, which she argues is necessarily a counter-value to environmental concern.

Good's findings are consistent with other empirical work that has shown the TV-materialism link (Shrum et al., 2011; Shrum & Lee, 2012).

*Mainstreaming* refers to similarities among heavy viewers of different socioeconomic groups who otherwise differ when they are light viewers (Good, 2009; Cox, 2012). Often the groups compared are ideological. For instance, when liberals and conservatives differ on an issue, it is often the case that *heavy viewing* liberals and conservatives are closer in outlook, and usually this closeness bends more toward the conservative viewpoint. This attitudinal closeness was termed "mainstreaming" by Gerbner and colleagues (1980) to reflect the convergence in outlooks that seems so common among heavy viewers. For example, research has shown a mainstreaming effect toward less accurate climate change knowledge among liberals who increasingly view entertainment television (Nisbet et al., 2015).

In our earlier analyses, we saw the mainstreaming phenomenon demonstrated in the 1993 General Social Survey (GSS) sample, where we looked at mainstreaming for the issue of willingness to make sacrifices for the environment (Shanahan & McComas, 1999, p.138). This pattern also showed up in GSS data from 2010. Figure 20.2 shows a characteristic mainstreaming pattern, in which liberal, moderate and conservative groups converge toward greater unwillingness to sacrifice for the environment as their viewing increases.
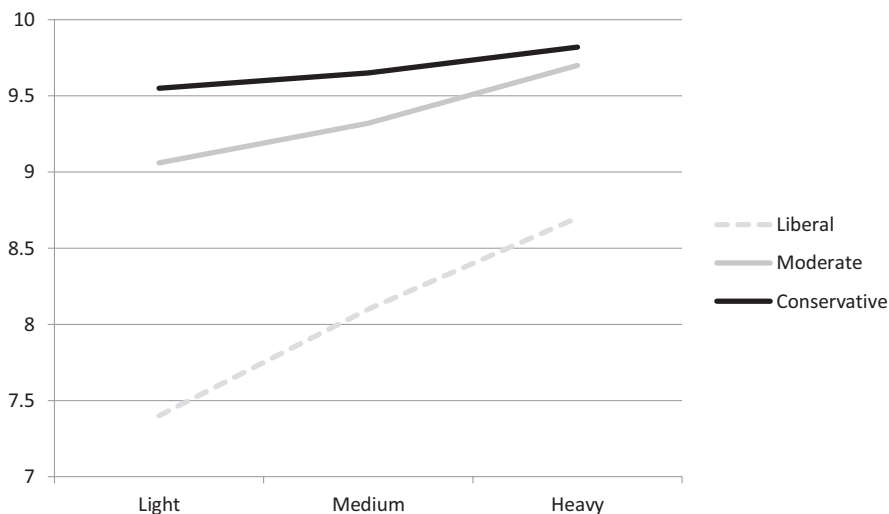


*Figure 20.2*    Mainstreaming of Attitudes Toward Environmental Sacrifice, 2010, in Political Subgroups (High Scale Values Signify Greater Unwillingness to Sacrifice)

Research might shed light on the mechanism behind this effect. It suggests that mainstreaming depends not on changing viewers' values, but suppressing them and providing another framework in which to consider the values (Slater et al., 2006). In other words, if television narratives do not support viewers' values, then these values are likely to be suppressed; the more television one consumes perhaps the more cumulative the suppression is. This might especially be the case with fictional television that does not operate from the norm of journalistic balance, which requires coverage of multiple agendas (Mutz & Nir, p. 2010). Instead, a fictional narrative can promote a singular set of values (Fischer et al., 2020).

Latter years of the GSS do not include as many of the original measures we used to assess cultivation effects, and there are relatively few other datasets that have been built to this purpose. Still, other investigators have added incrementally to our understanding of this issue. As Dahlstrom (2012) details, three main theories ("the transportation-imagery model [Green & Brock, 2000], extended elaboration likelihood model [Slater & Rouner, 2002], and entertainment overcoming resistance model [Moyer-Gusé, 2008]") argue in part that empathy with characters reduces resistance to persuasion effects (p. 304). In particular, a connection to characters' circumstances and plights affects persuasion responses (Moyer-Guse & Nabi, 2010; Oschatz & Marker, 2020). In addition, research shows that individuals underestimate narrative influences, when they don't see the narrative as having a negative influence (Dahlstrom & Rosenthal, 2018). As the authors note, this may lead to an underestimation of narrative influence (Dahlstrom & Rosenthal, 2018). Given that cultivation theory is essentially the study of mass narrative forms (Morgan & Shanahan, 2010), a focus on new findings from narrative research might lead to new insights into cultivation's mechanisms of effects.

## Media attention and the environment, other theories

Cultivation is not, of course, the only theory that looks at environmental media effects. Since the 1990s, research in mass media and the environment largely focused on print, in addition to television news coverage, although more recent research is also examining new media, with quite a bit of research focused on climate change (Boykoff, 2009; Boykoff et al., 2021; Takahashi et al., 2017; Zhang & Zhong, 2020). For example, recent research shows that climate change is increasingly accepted and characterized as a crisis among U.S. mainstream media, although conservative news organizations were more likely to negate climate change and its crisis associations (Parks, 2020).

Examining media attention to environmental issues using issue-cycle and agenda-setting analyses has produced a number of relevant findings. Agenda-setting refers to the role that the media take in defining topical issues for discussion among the public, while issue cycles refer to the up-and-down nature of attention paid to environmental issues (Downs, 1972; McComas & Shanahan, 1999; McCombs, 2005; Djerf-Pierre, 2012).

Turning first to agenda setting, findings on this front continue to show that the media have strong agenda-setting impacts on environmental issues such as climate change (Brulle et al., 2012; Carmichael et al., 2017). These studies focus on agenda-setting via active information seeking through news consumption. Research shows how types of media are used for different purposes – active information seekers are prompted to find information while information scanning occurs by gleaning new information from habitually used media sources (Niederdeppe et al., 2007). In this case, those who undertake newspaper or TV news consumption might be motivated information seekers, while everyday monitoring of the media environment might result in most environmental information being obtained through television programming. Such a claim is exemplified in climate change audience

segmentation studies. Findings showed that the "Alarmed" climate change segment (those who thought often about global warming and were strongly worried by it) followed news on global warming, sought it out, and were more likely to watch national network news (Maibach et al., 2009). Conversely, the "Disengaged" (those who had given global warming little consideration and weren't worried about it) were more likely to watch television than the national average, but watched less news and more entertainment programming (Maibach et al., 2009).

Turning from agenda-setting to issue cycles, Hansen (2011) argues that longitudinal studies are better at capturing how different meaning is made of issues over time. Other such work in the environmental arena has occurred. For example Djerf-Pierre (2012) turned to environmental news reporting in Sweden over a 50-year period and identified four themes upon which environmental issues are grounded. These represent environmental "catastrophes, scandals, alarms and controversies" (Djerf-Pierre, p. 505). Catastrophes are sudden events that trigger alarm, scandals are policy issues based on moral breaches, alarms represent scientific findings and controversies represent the movement of an issue from the policy to the political arena (Djerf-Pierre, 2012). The dramatic nature of these frames seems to correlate with assertions that American news media's coverage of environmental issues fixates on spectacular rather than everyday representations of the environment (Weber & Stern, 2011). Some of these frames also bear similarity to those found in other work specifically relating to climate change representations in newspapers or cable news programs, such as new scientific findings (alarms), controversies among scientists, or crises (catastrophes) (McComas & Shanahan, 1999; Parks, 2020).

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After all of this, we still don't have a complete picture of how society moved from lack of awareness, to conflict, to eventual acceptance of environmental realities. We still also don't know fully what the media role was in all of this. Partly our task is obscured by the fact that the construct of *media* really covers so many things. Still even with our focus on just entertainment television, there is the paradox that a dominant form of mass media, having turned its attention essentially away from the issue over the years, now almost wholeheartedly accepts it. CBS's 2021 Saturday morning lineup contains *Hope in the Wild*, a show focused on wildlife rehabilitation. NBC's Saturday morning segment also frequently deals with environmental and nature themes, with programs like *Wild Child*. Additionally, news programming accepts the reality of climate change; weather disasters are often treated in terms of their climate causes. (Notably, recent research shows that linking climate change to viewers' local weather coverage increased their climate change concern and engagement [Feygina et al., 2020]).

Given this, one might expect heavier television viewers to become more environmentally attuned, but the jury is still out. There is less frequency of research on media coverage of environmental issues now, perhaps because many researchers themselves consider media coverage to be less of a problem. But the many new channels available, and the rise of other media venues such as social media, mean that we still need to do more to understand how media use affects environmental attitude (see, for example, Jones-Jang et al., 2020)

More research needs to occur before we can conclude that the situation has changed since the 1990s. Though some environmental concepts have become buzzwords through their many media mentions (e. g., "climate"), there is not enough that is different about the institution of television that would logically make it, overall, a net contributor to environmental

concern. Though there is hope that media attention and even hype can catalyze environmental concern, it also useful to keep in mind that such hype could have exactly the opposite effect, possibly along the lines of the "narcotizing dysfunction" that is one of the oldest chestnuts of media effects theory (Lazarsfeld & Merton, 2000).

## Note

1   https://climatecommunication.yale.edu/visualizations-data/ycom-us/

## Further reading

Dahlstrom, M. F., & Scheufele, D. A. (2010). Diversity of television exposure and its association with the cultivation of concern for environmental risks. *Environmental Communication*, *4*(1), 54–65.
Extends cultivation theory in relation to environmental issues by looking at diversity of channels that people are exposed to. Exposure diversity is related to environmental concern above and beyond just overall exposure.

Good, J. (2013). *Television and the Earth: Not a love story.* Black Point, CA: Fernwood Publishing.
An extension and update of some21 of the ideas from Shanahan and McComas (1997). The main finding is that television viewing is associated with higher levels of materialism, which mediates a relationship with lower levels of environmental concern.

McKibben, B. (1992). *The age of missing information.* New York: Random House.
McKibben "analyzed" a whole day's worth of television content to see what it had to say about the environment, comparing it to a day spent in the woods. His conclusion is that television, for all of the "information" that it shows, misses a lot of the experience of being in nature.

Shanahan, J. and McComas, K. (1997). *Nature stories: Representations of the environment and their effects.* Cresskill, NJ: Hampton Press.
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# 21

# CARTOONS AND THE ENVIRONMENT

*Anne Marie Todd*

Mediated environmental messages are critical to public perception of environmental issues (Cantrill and Oravec, 1996; Corbett, 2006; Herndl and Brown, 1996; Killingsworth and Palmer, 1992; Myerson and Rydin, 1996; Neuzil and Kovarik, 1996). Media "provide us with the frames with which to assimilate and structure information" (Anderson, 1997: 18) and are thus critical to how we "make sense of our environment, society, and politics" (Hansen, 2010: 18). We perceive much of the world through screens: television, the internet, and social media provide news of environmental disasters, interpret science about climate change, and chronicle local environmental changes. We gain awareness and understanding of environmental issues from "mediated news reports, literature, or entertainment" (Meister and Japp, 2002: 3). Mediated environmental discourse holds a significant influence on people's attitudes and perceptions about the world around them.

Popular culture plays a particular role in the communication of environmental issues. Anders Hansen describes a "web of interaction between material and social realities, their representation and articulation in media and popular culture, and changes in public and personal views about the environment" (Hansen, 2010: 129). Popular culture includes the entirety of social and cultural discourse, including "powerful modes of advertising, board games, newscasts, print news, cable television, greeting cards, film, and animated cartoons" (Meister and Japp, 2002: 1). Visual and textual cues in entertainment media interpret humanity's place in the world. Language and images in popular culture "situate humans in relation to natural environments, create and maintain hierarchies of importance, reinforce extant values and beliefs, justify actions or inaction, suggest heroes and villains, create past contexts and future expectations" (Meister and Japp, 2002: 4). Phaedra Pezzullo urges scholars to explore how "the spectacle of popular culture also holds promise as a sign of the times and a terrain of struggle over values and practices on this planet that is our home" (Pezzulo, 2016: 806).

Cartoons are a beloved and enduring form of popular culture. Scholars in the fields of science, political science, sociology, and communication have studied the effects of cartoons on society. "The most common use of comic art is to entertain" even when cartoons are deployed critically such as propaganda and education (Lent, 2008: 353). The cartoon, whether printed comic or televisual animation, is a "literal and visual text [with] thematic, symbolic, and ideological material" (King, 1994: 106). Cartoons produce meaning around a range of important social and political issues. Cartoons and animation are rich areas for

communication scholarship concerned with how we construct and contest environmental issues. Cartoons offer significant environmental messages through character studies, comic corrective, and crisis response. In considering cartoons as environmental discourse, communication researchers must consider questions of medium and audience.

## Cartoon media

Cartoons are part of an art form that includes both printed comics such as graphic novels, Sunday newspaper comics, and editorial cartoons; as well as moving animation on film, television, the internet, and social media. Environmental issues are frequent subjects of editorial cartoons (Harris and Fromm, 2008). Animation in film, television, and internet shorts offers a wide range of environmental perspectives: from the feature-length film adaptation of *The Lorax* to the television series *The Simpsons* and *South Park* to internet campaign videos from Greenpeace to user-generated memes shared on social media.

Scott McCloud defines comics as "juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or produce an aesthetic response in the reader" (McCloud, 1994: 9). Robert Harvey argues the central characteristic of cartoons is the blending of visual and verbal content: "comics consist of pictorial narratives or expositions in which words … usually contribute to the meaning of the pictures and vice versa" (Harvey, 2001: 76). The legal definition of cartoons articulates the social impact of cartoons: a "pictorial parody which by devices of caricature, analogy and ludicrous juxtaposition sharpens the public view of a contemporary event, folkway or political (or social) trend. It is normally humorous but may be positively savage" (Beutel, 2001: para. 27). Cartoons are "a product of social interaction and interpretation" in that they reflect public debates and viewpoints (King, 1994: 105).

Marshall McLuhan offers cartoons as an example of "cool media," those which provide little information, requiring viewers to fill in details (McLuhan, 2001: 22–23). Asa Berger notes that cool media "invite our participation" to decode texts (Berger, 2007: 32). Unlike photographs or live action videos, cartoons are drawn, conjured from the imagination, and are not necessarily grounded in reality. Characters can take any form and stories can take place in an imagined space, in ever-changing landscapes. Animation is "not bounded by the physical laws governing 3-D space… and [can] take place in any geographic or historical time frame" (Alberti, 2004: xiii).

The freedom that animation provides allows for the distribution and appeals to a wide variety of audiences, facilitating communication across language barriers and demographic contexts. Because of the simplicity of dubbing animation in multiple languages, animation "can transcend cultural boundaries and become a universal language, provide strong messages, and smooth over situations and make them appear as if they can happen anywhere" (Lent, 2008: 376). Animation is ideal for communication of environmental issues due to its "accessibility, translatability and visualization of imperceptible processes" (Starosielski, 2011: 146). Cartoons "can serve as agents for cultural critique" because they are "created with the greatest freedom from cultural constraints" (Bruce, 2001: 243). The cartoon is a "cultural text embedded with codes and representations that can be read from a number of perspectives, including the margins" (King, 1994: 106). Cartoon narratives are not bound to constraints of social or cultural norms and can thus do "forbidden and disruptive things" (Bruce, 2001: 231). Cartoons can see the future, recreate the past, and offer alternative or mainstream readings. Animation has power because it "challenges expectations of art, film, and narrative" (Murray and Heumann, 2011: 2).

Cartoons offer a lens to the historical development of human perspectives. Historically, cartoons were part of television programming that played a key role in the framing of life (Spigel, 1992). Today, environmental messages exist at the intersection of the internet and television (Slawter, 2008: 213). Questions of environmental communication must consider the "media matrix that constitutes our social milieu," and "[take] technology seriously" (DeLuca and Peeples, 2002: 131). In his discussion of the cartoon parody of *The Matrix* aimed at revealing the horrors of factory farming, Dylan Wolfe writes that *The Meatrix* highlights the possibilities that new media offer for environmental advocacy: "more than just a clever movie spoof, a humorous piece of cultural kitsch, *The Meatrix* is significant for its dynamic use of emerging technology, minimal production cost, and successful dissemination" (Wolfe, 2009: 319). In considering cartoons as communication, researchers must take into account the changing mediascape in which cartoons are produced.

New media platforms have an outsized influence on how the public consumes and circulates information about the environment (Ross and Rivers, 2019: 976). Digital technologies have made animation, a traditionally labor and resource-intensive media-production process, accessible to non-professional media producers. Increasing accessibility of animation has resulted in democratizing of animated environmental messages as amateur producers engage in environmental issues (Starosielski, 2011: 158). User-created content such as Internet memes (commonly images with overlaid text) engages audiences with "political commentary, satires, and debates over notions of legitimacy" (Ross and Rivers, 2019: 976). Consumer-produced media enable public engagement with environmental issues by offering a response to policy or highlighting local environmental events. "Social media, memes, on-line cultural play, and the ease of sharing have all made quick responses to corporate actions and policy easier with a higher potential for potency and resonance" (Davis et al., 2016: 80). The "viral" nature of consumer-produced media facilitates increased awareness of environmental discourse. Animation's "emerging significance in the landscape of environmental communication can be traced not only to improvements in technology, but also to animation's strengths as an aesthetic and cultural practice" (Starosielski, 2011: 146).

## Cartoon audiences

Cartoons initially gained popularity among younger audiences and attracted wide viewership on Saturday mornings (Bruce, 2001), but primetime cartoons aimed at adults now produce some of the more pointed environmental messages (Stewart and Clark, 2011). Cartoons remain an important element of popular culture for children and play a large role in socializing children to environmental issues. In a

> "typical afternoon of children's television watching. *Sesame Street, MTV, Nickelodeon, Barney and the Backyard Gang*, all targeted to young viewers, regularly air environmental messages for children. Commercial cartoons have capitalized on environmental issues with characters such as the Toxic Crusaders and Captain Planet"
>
> *(King, 1994: 105)*

Cartoons can serve as edutainment, offering environmental lessons in visually appealing, memorable narratives for children.

Adult cartoons combine the "traditional children's medium, the cartoon, with the social and political content of prime-time programming" (Stewart and Clark, 2011: 323). Such an "ambiguous cultural space allows producers and writers to … treat serious and even

controversial issues under the cover of 'just being a cartoon'" (Alberti, 2004: xiii). The medium of animation allows the presentation of adult themes conveyed by silly characters through ridiculous storylines. While cartoons are not always realistic portrayals of life, they often reflect reality, offering relevant, and critical commentary on environmental issues.

Cartoons have multiple audiences. Modern animated movies appeal to an adult audience with double entendres, political references, and double-edged humor. Adult cartoons like *The Simpsons* and *South Park* are "often described as having multiple layers, including one aimed at the high cultural capital-possessing intellectual, but this 'higher' level is the level of its pastiche, not its parody" (Gray, 2005: 235). Animation can offer social commentary with unrealistic or exaggerated portrayals that can reflect or interpret reality. *The Lorax*, a computer 3-D animated adaptation of the classic Dr. Seuss story demonstrates the cross-over appeal of narratives where "ideologies [are] given force in a visually-prominent format" (Wolfe, 2008: 3). Cartoons present sophisticated environmental stories that appeal to both adults and children and are rich for scholarly inquiry.

Cartoons offer a visual discourse that portrays environmental quandaries and frames environmental issues (Einsiedel et al., 2017: 45). Cartoons are "ambiguous and complex" media that "deploy cultural symbols and metaphors" to facilitate multiple interpretations by diverse audiences. Animation allows "tensions between clarity and creativity," presenting multiple possible points of entry for audience engagement (Manzo, 2012: 4). Cartoon discourse allows audiences to "make immediate connections between the image and our cultural stores of meaning" (Einsiedel et al., 2017: 57). Cartoons "mobilize specific and contextualized social knowledge" in which audiences engage messages through particular ways of knowing themselves and their environment (Einsiedel et al., 2017: 45). Cartoons can raise awareness of environmental protection issues: "many social forces (particularly NGOs) have embraced cartooning as a strong tool for environmental activism" (Endong, 2019: 113). Political cartoons "provide a short-hand means of orientation to emergent issues" (Einsiedel et al., 2017: 45).

## Cartoon characters

Animated characters play an influential role in cartoon environmental discourse. Characters help form narratives about environmental issues, modeling how viewers might themselves approach a particular situation. Of course, by virtue of the medium, "cartoon characters are also allowed freedom from hypernormatic characterizations." Audiences do "not expect characters to suffer the consequences of their actions taken in prior episodes" (Stewart and Clark, 2011: 323). *South Park's* Kenny dies in nearly every episode and Bart Simpson will always be in fourth grade. The freedom from constraint that cartoon characters enjoy highlights the simplicity of their decision-making and can help clarify the social significance of environmental action.

The classic comic book superhero is a familiar character that has significant sway over our imaginations (Bongco, 2000; Lawrence and Jewett, 2002). Smokey the Bear is a long-held cartoon role model designed to persuade people to remember to take action to prevent forest fires. Captain Planet is an environmental superhero summoned by five Planeteers to fight planetary destruction. The Green Ninja is a climate action superhero acting to reduce individuals' ecological footprints to fight global warming. These hero narratives proclaim that individuals have the power to solve the environmental crisis.

The superhero narrative is not without critique; some scholars argue that it appeals to an American myth of masculinity and whiteness. (Lang and Trimble, 1988; Palmer-Mehta and

Hay, 2005). For example, Captain Planet follows the universal archetype for superhero—a privileged, muscular, white male. Even though the Planeteers hail from five continents, Captain Planet holds the power, and sociologist Donna King concludes that "Captain Planet is clearly *not* a superhero 'every kid' can look up to" (King, 1994: 110). Dylan Wolfe offers an alternative read of environmental characters, examining *The Lorax* as a "simple, colorful, charismatic prophet," which he argues, "provides a crucial element for the production of an environmental 'people'" (Wolfe, 2008: 20). A prophet has believers, followers who may invigorate the spirit of the environmental movement. Whether prophet or superhero, human or nonhuman cartoon characters can serve as exemplars of environmental action that offer opportunities for scholarly attention.

Popular culture typically positions nature as a resource, underscoring utilitarian values of environmental assets. "We consciously and unconsciously learn from popular culture the practice of consuming nature" (Meister and Japp, 2002: 1). Advertising produces persuasive examples of popular culture that reflect "the environment's utility and benefit to humans." Such discourse "commodifies the natural world and attaches material value to non-material goods, treating natural resources as private and possessable, not public and intrinsic" (Corbett, 2002: 143). In cartoon hero narratives about the environmental crisis, saving the planet requires, essentially, resource management to stem causes of pollution or stop environmental destruction (King, 1994). In environmental popular culture discourse, Julia Corbett argues, nature is "merely a backdrop… for all but the most critical media consumers, the environment blends into the background." Nature's characteristics, the "qualities and features of the nonhuman world," are used to convey messages and sell products (Corbett, 2006: 150). Cartoon depictions of natural features offer visions of the future. When Springfield's landfill grows too large, forcing the Simpsons (and all of Springfield) to move to the next town, the land lurches and gurgles, exaggerating the impact of waste disposal on the physical environment, highlighting what most people do not experience. Cartoons offer character-driven narratives that portray human perceptions of and attitudes toward the environment.

## Comic corrective

Kenneth Burke introduces the concept of frames for understanding human experience (Burke, 1937). For Burke, frames are the symbolic structures by which human beings impose order upon their experiences. Frames are "the more or less organized systems of meaning by which a thinking man gauges the historical situation and adopts a role with relation to it" (Burke, 1937: 5). Frames are perspectives of interpretation and explain the order of human experience. "Comedy emphasizes the limitations on human knowledge, the lack of transparency of the world around us" (Forster, 2002: 111). Humor can increase public awareness of the human impact on the environment, by presenting short easily digestible messages and thus is "useful to open up spaces of engagement, break taboos or to raise awareness" broaching taboo subjects (Kaltenbacher and Drews, 2020: 725–726). In this way, comedy offers an environmentalist perspective that is "approachable and self-reflexive" (DeLaure, 2011: 458). Comic frames offer a way to understand human imperfections and broader deficiencies in the social system.

Burke describes the comic frame as a rhetorical frame of acceptance that enables "people to be observers of themselves, while acting" (Burke, 1937: 171). This self-reflective perspective provides a humane way of dealing with the destruction of the order of the status quo. Comic strategies are tools through which individuals can "point out the failings in the present system" (Powell, 1995: 87). The comic frame sees "human antics as a comedy, albeit

as a comedy ever on the verge of the most disastrous tragedy" (Burke, 1937: iii). In response to the imminent tragedy, the comic frame allows for human error; it provokes charitable self-reflection, which is conducive to social change because audiences can be sympathetic toward causes that they might be complicit in perpetuating. The comic frame "provides the charitable attitude toward people that is required for purposes of persuasion and co-operation" (Burke, 1937: 166).

The comic frame reveals attitudes that are intended to provoke charitable self-reflection (Powell, 1995; Wills-Toker, 2002). A. Cheree Carlson notes that this perspective can "free society by creating a consciousness of the system as a system, revealing its inherent weaknesses, and preparing an aware populace to deal with them" (Carlson, 1986: 447). A comic perspective can lead to societal change through "reconstitution or re-education of the public audience, increasing the receptivity of the public to the marginalized, and increasing the resistance of public to the dominant institutional structures" (Madsen, 1993: 174–175). Cartoons use comic framing to highlight flaws in the human condition and present a way for these to be rectified. "Comedy enables us to see ourselves not as helpless victims in a doomsday scenario, but as imperfect actors who are both guilty contributors to the problem and agents responsible for its amelioration" (DeLaure, 2011: 458).

Adult cartoons demonstrate the comic frame as corrective. *The Simpsons* reveals that "the comic frame fosters more than an ironic self-awareness, but also constructs a position of semi-detachment, where one is able to reflect and comment on human foibles without guilt, shame, or other negative emotion" (Todd, 2002: 66). The show's characters "display an overall disregard for the environment, are separated from nature, and often oppose nature" (Todd, 2002: 66). Homer Simpson, the quintessential buffoon whose singular destruction on the environment is boundless demonstrates the "potential clown in all human beings" (Carlson, 1986: 448). Homer's choice to dump his pet pig's waste in the Springfield Pond is ridiculous and horrifying—highlighting the unsustainable disposal practices in humans. His ridicule of Lisa's choice to be a vegetarian demonstrates the pervasive meat-eating culture in America. The comic frame allows viewers to laugh at human behaviors, and while they may recognize a bit of themselves in Homer, they are not forced to judge that behavior.

The comic frame explains parody's pedagogical function because: "lessons rarely even feel like lessons…. Jokes make us laugh, many viewers are likely to seek out parody, and few of us are likely to feel imposed upon in the way we might react to overtly didactic messages" (Gray, 2005: 234). *South Park's* four impious elementary-school children can offer a parody of environmentalism to frame a critique of environmental debates. Julie Stewart and Thomas Clark argue that *South Park's* parody

> "simultaneously spoofs and reinforces many of the myths central to the American national character, parodies the condescension and intolerance of environmental advocates and their equally strident opponents. It employs a comic frame to ridicule extreme political behavior and language while promoting, through the children, an ethic of pragmatism and populism, with anti-elitism, anti-authority, and anti-hypocrisy themes."
>
> *(Stewart and Clark, 2011: 333)*

*South Park* offers criticism of a range of environmental stakeholders. An episode entitled "Smug Alert" caricatures self-satisfied environmentalists while "Rainforest Schmainforest" parodies someone who holds a romantic view of nature without an understanding of the dangers and fragility of the ecosystem. Cartoons can take "environmentalist and environmental advocacy to absurdity" (Slawter, 2008: 221). *South Park* offers a "'comic corrective'

identifying in a seemingly children's medium, the cartoon, the characteristics of environmental advocacy rhetoric and that of its equally vociferous opponents that are most offensive to mainstream American audiences" (Stewart and Clark, 2011: 333). Cartoons can exaggerate extremist views to present serious environmental debates in a new light.

Cartoons enfranchise viewers to learn without taking offense at the messages. "Parodic humor includes viewers by positing them on the knowing inside, rather than alienating them by positing them on the ignorant outside. Parody does not patronize us or talk down" (Gray, 2005: 235). The inclusive framework of cartoons has a pedagogical function. "Parody goes down easy and so may be consumed more freely [and] may inspire a more permanently critical disposition toward its targets" (Gray, 2005: 235). Shows like *The Simpsons* and *South Park* present humans as comic fools, allowing viewers to consider their actions with ironic self-awareness. "Comedy encourages a charitable attitude, toward others and oneself, which is crucial for assuaging doubt and guilt, both key obstacles to environmental engagement" (DeLaure, 2011: 455). However, humor must be used carefully because it can also serve to distract audiences from the central message and potentially undermine important messages about risk mitigation (Kaltenbacher and Drews, 2020: 718). Through humor, cartoons can present critical messages about wide-held beliefs or values that solicit reflection on the environmental impact of human society.

## Crisis response

Environmental issues compel public communication, which defines how public sphere responds to environmental issues (Cox, 2011). Cartooning responds to public crises, for example, it is a common form of communication in development projects aimed at changing lifestyles in Asia and South America (Lent, 2008: 361). Cartoon commentary on cultural and social norms can be considered a form of crisis response.

> "Cartooning in the forms of animation, comic books, comic strips, and editorial cartoons, has been involved in public crises alert and/or relief campaigns worldwide. In most cases, cartoons have been used to raise social consciousness levels concerning dangerous or potentially dangerous threats to the public."
>
> *(Lent, 2008: 352)*

Cartoons offer a form of risk communication and thus have an educational purpose. Of course, cartoons are not always educational, or scientifically accurate: images of science in cartoon and comics often distort ideas that can sustain stereotypes by society (Vílchez-González and Palacios, 2006). But cartoons "can be effective in pointing out risks and providing ways to manage them" (Lent, 2008: 383). Through their comic form with humor and visual appeals, cartoons provide warnings that are palatable. Cartoons rely on "easy-to-understand bridging metaphors derived from the popular culture" to impart knowledge and foster "public understanding and concern" (King, 1994: 297). Cartoons can portray environmental risks in ways that make viewers pay attention.

Cartoons are a way to talk about the apocalypse, a theme that pervades environmental discourse (Cox, 1982; Killingsworth and Palmer, 1992). Apocalyptic visions in the animated films *Wall.E* and *The Lorax* offer critiques of consumer lifestyles. Wall.E is a small robot living on Earth abandoned by humans. Visiting the space cruise ship holding humans who evacuated Earth he encounters a population immobilized by incessant media entertainment and processed food. In *The Lorax,* Thneed-Ville is a walled plastic city, where natural

elements such as air and water have become commodified. Outside both of these encased population centers, the world is devastated at the hands of humans. These apocalyptic visions reveal the future that overconsumption of environmental resources will bring.

Animated environmental messages, particularly those aimed at children typically offer a solution or moral to the story. Lisa Simpson is the "social conscience" of *The Simpsons,* which expresses its "ethical stance… most explicitly through [her] words and deeds" (Turner, 2004: 191). Cartoon characters that provide the foil to the comic fool can provide alternative ways of viewing and acting toward the earth. Whether animation, a form uninhibited by realism and laws of gravity, can offer realistic or authentic solutions is an open question. Kylie Caraway and Brett R. Caraway argue that the animated feature films *The Lorax* and *Wall-E,* offer a "utopic representation of nature" that valorizes technology as "means of achieving an ecologically sustainable future" without questioning the "fundamental role that technological development, guided by market imperatives, plays in ecological destabilization" (Caraway and Caraway, 2020: 693–695). In many ways, cartoons reflect the challenges facing environmental communication of all sorts – how to address "complex, systemic problems that demand serious social, political and economic consideration and concern" (King, 1994: 116). This is the question communication scholars must address when analyzing cartoons as crisis communication.

Cartoons are a potentially potent environmental educational tool (Toledo et al., 2014). Cartoons "catch the eye, engage the reader, and incorporate narrative in ways that make them important teaching tools" (Shurkin, 2015: 11741). Cartoons can play a meaningful role in complex environmental issues by raising awareness and understanding, providing opposing perspectives, and inviting political engagement (Manzo, 2012: 482). Cartoons have particular potential to respond to the climate crisis. Because of its fungibility, animation can make the invisible visible, exposing audiences to "imperceptible environments and environmental processes" that "makes possible at least three distinct representational practices: the visualization of environmental mutability, the representation of environmental interaction and the revelation of the environment as a construct" (Starosielski, 2011: 146). Starosielski describes this as environmental mutability, in which "environments are drawn, rather than captured; they transform, rather than staying still" (Starosielski, 2011: 159). Animation captures the environmental mutability of evolving crises like climate change, whose potential future impacts may be unfathomable to today's audiences. Cartoons enable visual representations of invisible, hard to define environmental issues through symbolic communication, and imaginative scenarios. "Cartoons have rich potential as geopolitical texts even if they fail to provide visual evidence of climate change" (Manzo, 2012: 483). For example, internet memes typically use humor or irony and are a potentially powerful form of social participation in environment (Davis et al., 2016). They also serve as potential protest rhetoric by delegitimizing greenwashing (Ross and Rivers, 2019). Ultimately, memes demonstrate how animation can powerfully convey simple messages (Kaltenbacher and Drews, 2020: 723).

## Conclusions

Comics, cartoons, animation—these visual art forms demonstrate the potential to raise awareness and possibility for change. Through their appeal to broad audiences, and increased reach through distribution across global networks, cartoons can be considered a democratic art form (Chatterjee, 2007; Maggio, 2007). The considerations of audience and medium enhance the multiple layers of meaning in cartoons. Animated environmental messages construct and contest the environment through hero narratives, the comic frame, and

apocalyptic visions. Research on cartoons as environmental communication will contribute to a greater understanding of the possibility of popular culture to influence public environmental knowledge and behavior.

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# 22

# CINEMA, ECOLOGY, AND ENVIRONMENT

*Pat Brereton*

## Introduction

The term ecocriticism was first named in 1978, but took off in the mid-1990s as a sub-discipline within English literature before it later transferred onto film study. As affirmed in a (2019) Routledge encyclopaedia of ecocriticism, edited by Scott Slovic et al., there is a growing need to move away from America-centric thinking, while supporting a greater engagement with multiple genres, including those focused on eco-masculinity to queer ecocriticism, alongside post-colonial eco-criticism and other disciplinary avenues. Furthermore, as instigated within literary ecocriticism, a so-called Fourth Wave has evolved, including material eco-criticism, transnational ecocriticism, eco-narratology, ecocritical animal studies and various forms of new media analysis.

Ecocriticism has traditionally been primarily attached to both high art and popular culture, while emphasising aesthetic, ethical and activist traditions across various societies around the world. Meanwhile, environmental communications have tended to lean towards practical issues through environmental journalism and the broader sociology of environmental movements. As Scott Slovic et al. (2019) affirm, all strands need to converge and create a more trans-disciplinary approach in addressing the challenges of our climate crisis.

Ecocinema

> overtly strives to inspire personal and political action on the part of viewers, stimulating our thinking so as to bring about concrete changes in the choices we make, daily and in the long run, as individuals and as societies, locally and globally.
>
> *(Willoquet-Maricondi, 2010: 45)*

Focusing on art cinema, she further argues that the filmmakers' unique use of long takes and slow pacing can promote contemplation across ecological lines and for example celebrates the Slovenian director Andrej Zdravic's *Riverglass: A Ballet in Four Seasons* (1997) for articulating such an aesthetic. Meanwhile, other art-house narratives such as Peter Hutton's *Study of a River* (1997) can be read as like 'being on a ship forced to slow down and allowed to take the time to look' (MacDonald, 1998: 252) and thereby really experience the environment; echoing in particular Bella Tar's embodiment of slow cinema.

Such analysis tends to emphasise how ecocinema is first and foremost a cognitive, rather than an affective or emotional experience. Cognitive estrangement is set up as the first step by which the desired state of environmental awareness might be attained. By all accounts, according to Rust et al., this is a very narrow, even elitist framing, while suggesting that eco-film criticism's over-arching purpose should *not* be to impose a political program – much less pre-defined aesthetic practices – but to help create public spaces for debate and argument over the claims of the environment for a place in political life (3).

Popular fiction films, alongside more conventional preoccupations with nature/ecology in televisual documentaries and animation, remain an excellent forum to promote and at the same time help puncture any simple[istic] formulations around the complexities of dealing with environmental issues and debates. Scholarship must move beyond simply creating a robust definitional and textual-based corpus of ecocinema and develop a body of clearly differentiated empirical evidence to help underpin many of the ecological assertions made in the literature, which could in turn help evaluate and measure future attitudinal changes. This is especially the case as ecocinema becomes more provocative and pervasive for its growing cross-media audiences.

Sean Cubitt goes so far as to suggest '[T]hough many films are predictably bound to the common ideologies of the day, including ideologies of nature, many are far richer in contradictions and more ethically, emotionally and intellectually satisfying than much of what passes for eco-politics' (Cubitt, 2005: 1). Cubitt further insinuates that while film critics remain preoccupied with the realist image, environmental science deals in effects that are often too vast, too slow, or too dispersed to be observed photographically. Consequently, in a seminal documentary like *An Inconvenient Truth* to be discussed later, there is a cinematic move towards rendering the world as visual data.

Meanwhile, Adrian Ivakhiv re-conceives cinema as 'a machine that moves us along vectors that are affective, narrative and semiotic in nature and discloses worlds in which humanity, animality and territory are brought into relationship with each other' (Rust et al.: 6). In describing cinema's complex interactions, Ivakhiv embraces three ecologies of the earth-world; namely the material, the social and the perceptual. His subsequent book-length study 'Ecologies of the Moving Image: Cinema, Affect, Nature' (2013) has major implications for future eco-film scholarship, as it grapples with a growing corpus of cinematic reflections and theoretical analysis. I will illustrate some of these issues presently with a discussion of among others the much written about eco-blockbuster *The Day after Tomorrow*.

At the same time, psychologists and film scholars frequently affirm how we cannot expect dramatic changes in worldviews as a result of simply watching a movie. Naturally also viewers tend to be attracted by the kind of films that fit their beliefs and probably eco-films may only be preaching to the converted. Yet mass audiences continue to watch movies precisely because of cinema's ability to reframe a wide range of perceptions. The late great film critic Roger Ebert of the *Chicago Sun-Times* often talked of the power of cinema to invoke empathy and allow audiences to step into another world and see reality from a totally different perspective. For ecocinema scholars, cinema enables audiences to recognise ways of seeing the world, other than through the narrow perspective of the anthropocentric gaze that ostensibly situates individual human desires at the centre of the moral universe.

While much theoretical analysis concentrates on the semiosis of the text, less attention has been paid to analysis of actual audiences' perceptions and interpretations, in order to empirically demonstrate these resultant affects and emotional connections.[1] Audience reception studies have in past decades emphasised the active, interpretative, critical, creative, and sometimes resistant nature of engaging with the media. Nevertheless, while

most film analysis makes claims about the audience, they seldom make this explicit (see Brereton, 2012).

Surprisingly much of the literature in film, much less in reception studies, remains somewhat abstract. For example a major study like Janet Staiger's *Perverse Spectators: The Practices of Film Reception* (2000) proposes the figure of the perverse spectator driven by 'affective and emotional experiences' (34) and pleasures. The perverse spectator, according to this thesis, engages film as 'an event', which reflects various layers of a multifaceted identity. In describing film viewing as an event, Staiger distinguishes between activities of watching (place, genre of text, social-mixing) and reception activities after the event (discussion, star imitation, production of new materials, and initiating new viewers).[2] Applying such particular aspects of textual and reception studies to a wide corpus of ecocinema for instance will take time and much more adaptive scholarship to further explain the environmental pleasures for audiences, alongside nailing down any key behavioural triggers.

## An inconvenient truth

The most cited example of ecocinema, at least from a documentary perspective, remains *An Inconvenient Truth* (2006) and succeeds not only because of its predictions and persuasive cognitive logics but also because of the deep eco-memories and emotional affect that it evokes. Gore's film – albeit directed by Davis Guggenheim – argues more powerfully for a widely held nostalgia for a better, cleaner world. Gore's very direct message gains rhetorical force, according to another ecocinema study (Murray and Heumann, 2009: 195), by foregrounding what can be defined as environmental nostalgia, coupled with its powerful emotional appeal.

This eco-documentary argues powerfully for sustainable environmental policies, by invoking both personal and universal ecological memories, as earlier evident in classic science fiction films like *Silent Running* (1971), *Omega Man* (1971), and (even more closely entwined with Gore's narrative) *Soylent Green* (1973). *An Inconvenient Truth* opens with two scenes illustrating two historical memories of the world 30 years beforehand. One of those memories grows out of a meandering river that flowed near Al Gore's family farm,

> a river we see flowing clean and clear through a pristine green landscape. The year is 1973 and Al and wife Tipper float along in a canoe over gentle ripples of the Caney Fork River. Living nature is highlighted here by the river, the foliage that lines it and the fact that Tipper is close to giving birth to the Gore's first child.
>
> *(Murray and Heumann, 2007: 1)*

According to Murray and Heumann, such an affective and nostalgic eco-text helps to create a 'tipping point' in audience engagement and affords the legitimation of environmentalism as a primary ethical imperative.

Riding on the crest of this notion of a global tipping point, while developing a persuasive visual style that draws upon the scientific truth of climate change, actively inspired media producers to permeate their media landscape with images of global warming in diverse fictional films like *11th Hour* (2007); *The Day the Earth Stood Still* (2008); *Quantum of Solace* (2008), *Wall-E* (2008), *Avatar* (2009), etc. All of these contemporary narratives, according to Rust et al. (2013), Wheatley (2012) and Kaapa (2013), draw on the inspiration and potency of this small-scale cautionary documentary tale.

Furthermore, at an aesthetic level, data visualisation through an innovative usage of graphs, PowerPoint and other visualizing tools serve to re-affirm the documentary's originality.

According to Cubitt, *An Inconvenient Truth* most effectively embraces cartography, numbers, graphics, and simulations, which are also integral to the explicitly scientific discourse of climate change. Since global events like climate change do not occur in humanly perceptible scales or time-frames, they consequently demand forms of representation that can capture massive but at the same time relatively slow ecological change. Godfrey Reggio most notably pioneered the use of time-lapse photography in his eco-parables *Koyaanisqatsi* (1982) and *Powaqqatsi* (1988); techniques which in turn feed into evolving tools of representation that help to visualise such large time shifts and effectively capture themes central to a deep ecological agenda. *An Inconvenient Truth* foreshadows the 2012 eco-documentary *Chasing Ice* for example, revealing the inside story of Climate Science through the stunning time-lapse photography of James Balog. The visualisation of climate change in such documentaries helps to overcome the tempo-spatial problems highlighted as one of the most challenging aspects of climate change communication. Balog's solution employs the use of photographic stills taken from the same vantage point and separated by years; thus presenting the unfolding ecological crisis before our very eyes, in breathtaking simplicity through the use of time-lapse photography; like Kilimanjaro's vanishing snows (Cubitt in Rust et al.: 280).

Incidentally, there are surprisingly more dramatised instances of data visualisation in *An Inconvenient Truth* than in *The Day After Tomorrow* which I now turn to, with its surfeit of science fiction fantasy. Certainly attempts to create more realistic representations of climate change have become possible and even prophetic. Following actual footage from recent extreme weather events like Hurricane Sandy and the extensive flooding around New York and its environs, such dramatic storylines speak to a less committed and more suspicious mass audience and probably have important long-term consequences, at least in bringing environmental concerns into mainstream public consciousness. Furthermore, while fictional narratives often remain exaggerated and scientifically untenable, especially within futuristic science fiction fantasies, nonetheless they still provoke a form of surface realism that is suffused through futuristic news broadcasts for example, seeking to highlight the truth concerning various consequences of global warming.

## Cinematic affect: the day after tomorrow

At the outset, we must recognise that climate change is not the only global environmental risk exploited by Hollywood in recent years: one calls to mind for example nuclear war in *Terminator 2: Judgement Day* (1991); deforestation in *FernGully: The Last Rainforest* (1992); bioterrorism in *28 Days Later* (2002); species extinction in *Earth* (2007), *Snowpiercer* (2013); population growth in *Slumdog Millionaire* (2008); ecology and religion in *The Tree of Life* (2011), *The Life of Pi* (2012), and *First Reformed* (2017); reducing consumption in *Downsizing* (2017), among many other categories.

It makes sense for instance that the first fictional film to directly portray global warming was a post-apocalyptic science-fiction film set in the future. *Soylent Green* stars Charlton Heston and Edward G. Robinson as detectives on the case of a murdered food-industry executive. Through the late 20th century, as the science of anthropogenic climate change became more conclusive, the energy industry and conservative think tanks led a concerted effort across the mainstream media to frame the issue as a theoretical debate rather than a practical concern.

In a chapter titled 'Hollywood and Climate change' (Rust et al., 2013), Rust makes an unsubstantiated claim that climate change films have primarily influenced a shift in American popular environmental discourse by translating the science of 'global warming'[3] into

the vernacular of cinema. Released in 2004, *The Day After Tomorrow* earned more than 500 million dollars at the global box office and offers a window into what Stephen Rust terms, the 'cultural logic of ecology', epitomizing the pronounced shift in American popular discourse around the relationship between human beings and the earth that is taking shape in the early 21st century.

By the time global warming re-emerged in cinema during the late 1980s and early 1990s, 'a majority of scientists [had become] convinced that global warming was occurring' (Leiserowitz, 2003: 8–9). In this disaster-framed fictional world of *The Day after Tomorrow*, neither scientific consensus nor increased weather anomalies inspire the government or the public to begin mitigating global warming in time to avert disaster. The film's narrative suggests, only when 'Americans finally *see* climate change and *feel* its direct impact within the United States', will 'they accept responsibility for causing global warming and begin to take action in response to it' (Rust et al.: 198).

Meanwhile, contemporary film research has become more preoccupied with the power of emotional empathy and affect, as against more cerebral cognitive engagement. See for instance the work of scholars like Greg Smith, Nöel Carroll, Murray Smith, Carl Plantinga, and many others. Greg Smith's 'associative model' (2003) for instance, usefully accounts for how different aesthetic registers work together to construct a film's meaning for the viewer; a process that involves cognitive, emotional as well as affective aspects. Affect essentially is a visceral, bodily response to a film, whereas emotion also includes a cognitive element. According to this model, a narrative film usually works by establishing the viewer's emotional relationship with the protagonists' goals and actions, as well as through lower level, non-verbal affects that he calls 'moods', produced by stylistic elements including music, *mise-en-scene*, lighting, colour, etc.

Without voice-over commentary or 'talking heads', as seen in documentaries like *An Inconvenient Truth*, or the very innovative and engaging Australian eco-documentary *2040* (Damon Gameau, 2019), a film works as much through audio visual affect, as against the sort of cognitive affects identified by Willoquet-Maricondi and MacDonald and remains central to the eco-film (Rust, 2013: 46). The significance of these models/interpretative frameworks becomes more apparent when understood in the context of the evolution of film studies, which has focused on teasing out form as opposed to content, while attempting to differentiate and analyse various aesthetic strengths. Whereas for some scholars ecocinema simply seeks to speak to and foreground specific thematic manifestations of environmental concern. Essentially therefore the focus of such analysis involves striving to extract the particular variables which might promote a pro-active engagement with the environment.

With its broad strokes eco-fictional diegesis and its evocation of an environmental creative imaginary, *The Day After Tomorrow* certainly has the potential to cue and prompt viewers into an active, conceptual and sensory consideration of the relationships between humans and their global environment. For instance, there have been useful audience studies in Germany and America (see studies by Leiserowitz, 2004[4]) focused on reactions to the film, which highlight the varying power of the text to speak to mass audiences across cognitive and emotional protocols. Much more substantial longitudinal studies are needed however to test many of the assertions made in such pilot studies, using more extensive textually-based eco-film investigation and this form of scholarship is ongoing (see Parham, 2011; Brereton and Hong, 2013; Seelig, 2019). As affirmed in a 2020 special issue of the environmental journal ISLE on empirical ecocriticism, while recognising 'so many contradictionry agendas and paradoxes', embedded within all forms of ecofilmic criticism, 'what audiences choose to view through an often anti-environmental media landscape needs to be constantly

recognised and such dangers called out' (Brereton and Gomez, 2020: 15). By all accounts, most scholars would agree that far greater understanding of the power of mediated texts like film is demanded through further research and scholarship, coupled with empirical exploration as indicated by these overview readings.

## *WALL-E*

Directed by Andrew Stanton, this cautionary animated satire on consumer culture for the modern world – pushing the implicit assertions of *An Inconvenient Truth* to its ultimate conclusion – has rightly received much praise for its engaging storyline; ostensibly set in 2,700, long after the earth is smothered by waste and declared unlivable for humans. *Wall-E* bravely foregrounds a non-talking waste allocation (analogue-like) load-lifter – the last 'inhabitant' and robot on planet earth – who initially makes friends with a stray cockroach, before finding his true love EVE (Extra Terrestrial Vegetation Evaluator), a pristine (high tech digital) robot sent to earth to investigate if humans could possibly return to their erstwhile 'Garden of Eden'.

Much later we find out, 'Buy-n-Large' a business corporation has been largely responsible for the waste explosion on the planet. Its CEO, a bland hypocrite called Shelby Forthright has, as Philip French asserts in his *Guardian* review from 20th July 2008, whisked away the human inhabitants for a cruise on the luxury starship Axiom, which has lasted for several centuries. Meanwhile, robots like Wall-E are left marooned back on earth to clean up the mess. For over 40 minutes this 'rusty metal box with ET's eyes' does nothing much but potter around his city space engulfed in filth, waste, and flotsam from a dead planet. By all accounts, this is a long way from the frenetic action adventure of *The Day after Tomorrow.*

David Whitley provides a most useful eco-reading of the film and its 'mode of emotional identification that includes rampant anthropomorphizing' (2012: 3) and goes on to argue how the chief protagonist remains in love with the consumer culture that he so effectively critiques.

Meanwhile, like in *Terminator2* with its more advanced computer organism T1000, EVE also appears at first to be more suspect and less ethical in her actions, by zapping everything in her way. But soon both learn to appreciate each other for what they are. Eventually during their strange courtship, Wall-E shows off a living organic green plant, which was locked away in a safe. As in *Logan's Run, Blade Runner* (1982), *Waterworld* (1995), and many other eco-science fiction narratives, organic vegetation is greatly prized in such a synthetic world. This miracle of natural photosynthesis in turn proves that the planet is again habitable and secures the empirical proof EVE was sent out to discover.

According to a conference paper by Bob Mellin (2009), *Wall-E* assumes that the apocalyptic warnings found in documentaries such as *An Inconvenient Truth* are valid, and as such, we can be comforted by the movie's claim that the environmentally degraded planet in *Wall-E* can be restored to the garden that it once was. Near the end of the closing credits of the film, we witness Wall-E and EVE, who have seemingly made an escape from the degraded city where they first met, holding hands within a lush green and pastoral landscape, reminiscent of a new Eden – like the original closing of *Blade Runner*, or as also visualised in *Silent Running*. Recalling the 1964 touchstone work *The Machine in the Garden*, where Leo Marx advanced the now commonplace argument that pastoralism is foundational for the quintessential American experience, with the Anglo-colonizers originally perceiving North America as literally a new Eden. One wonders however if contemporary audiences are satisfied in the same way by such historical forms of pastoralism, as suggested by Murray and Heumann (2009).

Either way, on a narrative level, the residents of 28th century earth do not find refuge from the ills of civilisation in the countryside; probably because there is no longer a pristine countryside to escape to. Instead, they have to travel to outer space in a spaceship that combines the splendors of shopping malls, alongside the convenience of conventional cruise ships. One would almost instinctively agree with Murray and Heumann's conclusion that *Wall-E*'s artificial environments are anathema to the restorative qualities of romantic pastorals,[5] a trope which continues to have echoes in a major recent eco-blockbuster *Avatar* (2009) to be discussed presently.

In *Finding Nemo* (2003) and *A Bug's Life* (1998) – not to mention the unique representations of nature in Miyazaki's Studio Ghibli classics *Nausicaa of the Valley of the Wind* (1984), *Laputa Castle in the Sky* (1986), *My Neighbour Totaro* (1988), *Princess Mononoke* (1997) and most successful of all, *Spirited Away* (2001) – in *Wall-E* also, nature and the environment take centre stage. While liberal audiences certainly find *Wall-E* provocative – drawn one supposes from the environmental message posed, with its blatant critique of over-consumption – conservative Christians apparently find the film alternatively fills a wholesome niche, by essentially valorising deeply felt conservationist values. Such conservatives particularly detest litterbugs, according to a review by Charlotte Allen (July 13th, 2008) in the *Los Angeles Times*, alongside all forms of parasites, who expect others to clean up after them.

As recalled in my Pixar chapter in 'Smart Cinema' (Brereton, 2012), the film is reminiscent of Roman times and the crude political strategy of using 'bread and circuses' to keep the masses satiated. This futuristic artificial society was similarly visualised in classic science fiction films like *Logan's Run*, where the populace is controlled by pleasure and spectacle, with its inhabitants not required to make personal decisions, much less forage for food. *Wall-E* follows a similar path, with its more contemporary obese-looking animated humans, drip-fed on synthetic food and thereby becoming more supine and docile in their massive spaceship, having all their corporeal needs serviced by a mechanical under-class. In such an artificial futuristic age, the allegory insinuates, humans have lost the capacity to appreciate the importance of scarcity and striving for basic needs, alongside more normative evolutionary human desires around freedom to control one's destiny.

There was much debate over *Wall-E*'s intended ecological message and whether it went too far, or not far enough, towards suggesting any solutions for our waste problems. In any case, the film effectively plays out a food consumption allegory around how unchecked appetites (alongside more controversial population explosion concerns) pose a major danger to the planet and its inhabitants. Within such allegorical storylines, science fiction in particular offers a cautionary glimpse into a dystopic future in which our insatiable hunger and general rapaciousness threaten to destroy the planet, eating away at our basic humanity, as cogently represented in earlier classics like *Logan's Run* and *Soylent Green*.

## Avatar: ecology and big business

The story centres around the evocative representations of the inhabitants of Pandora called Na'vi, who literally plug into the exotic, ecologically benign, and idyllic flora and fauna, rather than just naturally appearing at one with their habitat, as in so many representations from Hollywood generic fare. Adapting a classic narrative framework, Hollywood frequently situates its anti-heroes, like the Native American Indians, within a clearly established environment and portray them as totally in tune with their habitat, as opposed to the colonizing and destructive agency of the white settlers (see for instance Bird et al., 1996; Kilpatrick, 1999; Elsaesser, 2011). As affirmed frequently in film scholarship, the western genre has been

transformed into a contemporary form of science fiction spectacle, following similar generic and thematic tropes, and this trajectory is especially evidenced in this eco-blockbuster.

This hugely successful 3D spectacle, directed by James Cameron, follows the journey of Jake Sully (Sam Worthington), a former marine who was paralysed during combat on Earth. His twin brother had been working as a scientist for the so-called Avatar program on Pandora – the well-named planet with the much sought after energy source, unsubtly called unobtainium. This scientific project constructed genetically engineered machine-human-Na'vi hybrids that enable the humans to control these avatars with their minds, while their own bodies sleep. An avatar, we discover, can only be controlled by a person who shares its unique genetic material; consequently when Jake's twin brother dies, he is asked to join the squad, being the only one who has the appropriate genes to control that particular avatar.

After the initial vicarious thrill of being able to freely run around this fantastically rich habitat in his new agile body, Sully faces a major ethical dilemma during his fantasy journey, in being forced to participate in the mechanistic and cosmic Manifest Destiny that will ultimately lead to the destruction of Pandora and the Na'vi culture, including its magnificent and exotic vegetation under which most of these precious deposits are situated, echoing current concerns around fracking and various forms of deep mining. Alternatively and more heroically of course, he could choose to embrace a radical conversion and reject his destructive predetermined agency.

In the guise of a tranquil and harmonious interaction with the unknowable otherness of the Na'vi, Sully becomes the audience's eyes, literally engaging with this alien but idealised eco-utopia. This narrative plays into long-established generic discourses of several indigenous Native cultures portrayed in westerns, alongside more benevolent eco-narratives like Terrence Malick's primal American allegory *The New World* (2005). The setting up of this exotic spectacle, using the extreme violence perpetrated by humans in battle, can at an individual level also be viewed as a conflict between the un-recuperated male war-hero Sully and his love interest, embodied by a native princess called Neytiri (Zoe Saldana).

The image of a Great Mother protecting the balance of life clearly draws on a pantheistic and deep ecological vision in which energy continuously flows through discrete bodies of organic life. During this and other sequences, Neytiri teaches Jake to behave and think as a Na'vi by 'going native' – a trope eulogised for instance in *Dances with Wolves* (see Brereton, 2005: 98–102). *Boston Globe* film critic Wesley Morris and others have mischievously renamed the film 'Dances with Blue People' (see McGowan, 2010: 3), to signal the obvious reference to this revisionist film. Sully records in his video diary that Neytiri is 'always going on about the flow of energy, the spirits of animals', and adds, 'I'm trying to understand this deep connection the people have for the forest'. Further referencing a deep ecological agenda, she talks about 'a network of energy that flows through all living things' and affirms how 'all energy is only borrowed and one day you have to give it back'.

Surprisingly, such an overtly explicit controlling ecological agenda, was too much for some eco-critics who found the *mise-en-scene* of the iconic Home-Tree for example as simply too crude and too obvious from an ecological perspective and deduced that the story was trying too self-consciously to get its didactic message across, which in turn militated against its final achievement. For a more comprehensive analysis of various critical readings, see Thomas Elsaesser's (2011) comprehensive analysis, alongside contrasting readings from a wide range of scholars in Bron Taylor's (2013) reader dedicated to the film.

Paradoxically however in more 'serious' art house eco-cinema, as articulated by Willoquet-Maricondi and others discussed above, this direct strategy is not considered a drawback in any way. The old propaganda debate comes to mind, weighing up subtle

semiotic and thematic concerns against the power of unambiguous didactic messages that project a high level of moral self-righteousness. Without seeming to adopt a patronising tone; for general audiences not inured into the intricacies of a deep-ecological mindset, much less worried about the danger of essentialising ecological precepts within a gendered or ideological address, such easily digestible cinematic experience and powerful eco-visual correlatives are essential ingredients for effective mass communication. Hearing about the network connections which link back to the exotic Home-Tree, alongside relating how its non-humanoid inhabitants commune with, rather than abuse their habitat, remains allegorically potent for a whole generation of cinema goers and might even help to promote a contemporary form of eco-cinematic literacy. The importance of such an ecological allegory can be concretely appreciated at one level, by how it banked 2.98 billion dollars within the first two years after its release; 73% of which came from outside of USA.[6]

The director James Cameron's well-publicised visit to the Amazon Basin in mid-April 2010, after the film's global release, no doubt reflects his personal commitment and support for the rights of native peoples and their particular resistance to a proposed hydropower project on the Xingu River that would flood its indigenous Kayapó homelands. Speaking like a well-versed politician: '[W]e're here to listen to what you are saying, to hear your concerns and, because I am a film-maker, to share this with the outside world' (cited in www.blospot. ie). Cameron noted that the writing of *Avatar* was at least in part, inspired by such diverse native peoples' struggle to protect their homelands. Before bidding farewell to the elders, as a committed deep ecologist, Cameron affirmed in a review in the *Guardian* by Tom Phillips; 'the rivers and the forests have a moral right to continue to exist as they have for thousands of years' (April 18th, 2010).

Cameron refused to back down apparently, according to journalist Gina Salamone (February 18th, 2010), when Fox studio executives suggested he leave some of 'the tree-hugging *Fern Gully* crap out of this movie' (see www.nydailynews.com). Betting that viewers would feel moral outrage at the Company's treatment of the Na'vi, Cameron's film successfully tapped into audiences' increasing awareness of global warming and some even suggest frustration over the wars in Iraq and Afghanistan. Paradoxically, however, the destruction of the Na'vi Home-Tree, required Cameron to fully exploit the special effects and visceral pleasures of the blockbuster business model that is a hallmark of capitalist consumption.[7]

Nevertheless, many observers less worried about creating ecological awareness highlighted that *Avatar* simply pilfered aspects from films like *The Emerald Forest* (1985), *Ferngully* (1992), or *Pocahontas* (1995). Others complained about Sully's 'white messiah' stereotyping (see www.fantasy-matters.com or Elsaesser, 2011) and suggested that the film recreated a 'noble savage' narrative, further playing into regressive colonial discourses.

Most recently Carolyn Michelle et al. addresses these and other concerns in a very useful audience analysis titled; 'Understanding Variation in Audience Engagement and Response: An Application of the Composite Model to Receptions of *Avatar* (2009)' (2012). Such tentative research however is at a very early stage of development and much more broad-based evidence is needed to tease out and defend the film's ability to promote pro-environmental messages, around the sacred right of nature to protect itself.

Similarly, Lisa Sideris's (in Taylor, 2013) evocation of empathy in the film is most informative by the way she poses the question, alluded to earlier with regards to Hurricane Sandy and *The Day after Tomorrow*; does our constant bombardment with images of suffering, environmental disaster and injustice inure us from these important issues, leading to what experts call empathy or compassion fatigue? See for instance a review piece by Hugh Wilson titled 'Have you got Green Fatigue' (*The Independent*, Nov 29th, 2013, accessed

through www.independent.co.uk). Maybe this is the case, yet I would like to believe that education for empathy, taking on board various caveats, can nevertheless be effectively used to promote a transformational mode of active environmental engagement and even pro-active citizenship (see Brereton, 2019). Advocates for instance cite how children need to form an emotional, visceral bond with the natural world and with nonhuman forms of life (see for instance the Biophilia thesis by Wilson, 1984), before learning the dispiriting details of the environmental crisis (see Louv, 2010). The potential of eco-film in mobilising debate using successful examples like *Avatar,* can by all accounts support and promote this process of engagement. The use of a broad range of ecocinema as an educational tool is becoming a growing preoccupation in recent studies, as documented in Greg Garrard's edited (2012) volume or more recently Lopez's (2021) overview, which includes a wide range of pedagogical approaches, drawing from scholarship across more explicitly defined eco-literature and film studies.

Without question however the most provocative critic of *Avatar* remains Slavoj Zizek, who winces over its 'politically correct' themes, supporting 'an array of brutal racist motifs; a paraplegic outcast from earth is good enough to get the hand of a beautiful local princess and to help the natives win the decisive battle'. Rather than promoting a proactive ecological message, the film, he claims, teaches us that the only choice the aborigines have is to be saved by the human beings or to be destroyed by them. In other words, 'they can choose either to be the victim of imperialist reality, or to play their allotted role in the white man's fantasy' (cited in Taylor: 4). In a YouTube video entitled 'Ecology as Religion', Zizek further denounces the film, calling it a mystifying ideology and encapsulating 'the new opium of the masses'. According to him, we need to love and embrace the real world, not an idealised ecological one (Zizek, 2010).

While sensitive to Zizek's fears, Bron Taylor in his final summation of the influence of the film sticks his neck out affirming; 'that there may well be a gestalt change in consciousness beginning to emerge' (ibid.: 4) following the films' release. While I would certainly caution against such unbridled optimism, echoing criticism of Rust's earlier endorsement of the power of *The Day after Tomorrow,* nonetheless one might at least accept the film's flawed potency and staying power in helping to extend a growing corpus of eco-films, alongside provoking a more robust form of eco-criticism. Such a popular mainstream film can, like others discussed in this chapter, be used as an effective short-hand and as an evolving template for popular ecological discussion around the exploitation of scarce natural resources, together with other prescient ecological concerns.

## Conclusion

Many critics including Zizek and Ivakhiv discussed above worry that a strictly aesthetic or moralistic approach to ecocinema fall short of offering critics a sufficient toolkit for identifying and analysing the contradictions inherent in all films. While an underlying question for David Ingram is whether one film style, genre, or taste culture is more effective than another in promoting some form of ecological understanding. The recent proliferation of a number of new environmentally focused film and media journals – including *Media+Environment* (2019) edited by Alenda Chang, Adrian Ivakhiv, and Janet Walker, together with the *Journal of Environmental Media* (2020) edited by Hunter Vaughan and Meryl Schiver-Rice, alongside the turn towards empirical eco-criticism as outlined in special issue of ISLE (2020), all serve to highlight that the area of study is growing rapidly and will in time draw on more fruitful Humanities and Social Science disciplinary areas into the future. Consequently, we remain some way from confidently addressing these and other theoretical debates and

assumptions concerning the effectiveness or otherwise of so-called ecological cinema. Furthermore, while more advanced, there remains some healthy division over what actually constitutes ecocinema. While many scholars cited above affirm the power of documentary and art-house cinema towards provoking an ecological agenda, this chapter has tried to illustrate how a wide range of fictional film can also be effectively read as promoting a more all-encompassing ecological agenda.

In particular, much progress has been made in cataloguing a growing corpus of ecocinema and developing effective multi-layered textual analysis protocols for appreciating ecocinema. Rust et al. (2013), together with Willoquet-Maricondi (2010); Taylor (2013); Slovic (2019) and other readers in the publishing pipeline are creating a growing body of scholarship that will embed a broad range of strategies and theoretical models to assist in this evolving area of study. Most importantly now, however, as mentioned in this chapter, extensive audience research and reception studies are badly needed to test and evaluate many of the hypotheses and assertions developed within the eco-literature. Incidentally, Thomas Elsaesser has provided a useful model for web analysis of film reception which could be applied specifically to eco-cinema. He suggests four layers including:

- Raw data culled from statistics (like Google's 'Insight for Search'
- Data Gathering from users on (nationally, linguistically and regionally specific) blogs, list-servers, chats (including IMDb users' reviews)
- Critics' taste and classification (e.g. external reviews listed on IMDb, Rotten Tomatoes, Metacritic, Factiva.com)
- Scholars' conceptualisations and systematization (trans-national cinema, postcolonial studies, etc.) (Elsaesser and Buckland, 2013: 180).

By all accounts, arguments will only have force if we physically feel them. In other words, if an argument fails to generate feelings, or does not tap into an affective range of public engagement, then it will probably not persuade. This is why the creative imaginary of fiction remains so important in mobilising and framing public opinion and the extensive power of emotions remains of primary importance in affecting audiences. Such arguments only motivate when they induce feelings including satisfaction, pleasure, excitement, interest, anger, or distress. If it generates no feelings at all, they are unlikely to be persuasive.

Margrethe Bruun Vaage provocatively suggests in a *Nordicom Review* piece (2009: 159–178) that fiction film elicits self-reflection through self-focused role-taking, where spectators with the help of fiction clarify emotional experiences that have relevance in their own lives. She uses the untheorised notion of 'transportation' and 'transformation' to help appreciate what happens when strong emotional experiences in film viewing take place, drawing on personal and non-conventional associations and reflections. These useful terms, together with the well-used notion of the creative imaginary of film, could be more explicitly foregrounded and theorised in future examinations of eco-cinema.

Furthermore, at the reception level, it would appear much depends on the predisposition of various audiences and their engagement with ecocinema. At one extreme, eco-narratives designed for more attuned or susceptible spectators might be felt almost like a religious experience, leaving one open to unconditional surrender and life-changing values – echoing the comments by Willoquet for instance at the start of the chapter. While for a majority audience, one supposes they might probably experience a temporary affect, at least when consuming ecocinema. But to test or validate such assumptions, extensive longitudinal and cross-cultural audience analysis is badly needed.

As also insinuated in this chapter, eco-film scholarship's over-arching purpose probably should *not* be used to impose a political program and still less to propose a more 'efficient' communication of scientific truths to a waiting audience, as evidenced in documentaries like *An Inconvenient Truth*; but more democratically can be actioned through a broad spectrum of eco-inspired fiction and documentary to raise political awareness and help create a public sphere for debate and argument over the claims of the environment, in demanding a central place in political life. Mass audience fiction film certainly remains a persuasive medium, which by all accounts help promote and highlight complexity around environmental debates.

We urgently need more research and evidence to evaluate the overall effects of the production, circulation and especially reception of what can be loosely categorised as ecocinema (see Lin, 2013 for a very useful survey of Taiwanese students, or Brereton and Gomez, 2020 for an Irish cohort). Audiences seem to have a strong craving for stories and narratives of all kinds and this probably is connected to a constitutional functioning of our brain where narratives across cultures always have been used to help make sense of our world. Audience research in recent years has suggested that there is no contradiction between experiencing films as entertaining with an escapist potential on the one hand, and alternatively as creating profound meaning and deep engagement upon the minds of the spectators on the other hand. But further research is needed to confirm the most appropriate questions to investigate and provide robust ways of developing an ecological approach to film study. David Wheatley hits the right note when he affirms with regards to *Wall-E;* 'we clearly need fables of enchantment of this imaginative quality if we are to develop the kind of ethical generosity and grounded vision that are necessary (as the film puts it) to live fully, or even perhaps to survive' (2012: 159).

## Notes

1 There has been much recent debate and investigation into whether film can really affect psychological mood and our explicit attitudes towards climate change in particular. One study for example showed clips of *An Inconvenient Truth* and found that the clips shown did affect emotion and some participants were more inclined to do something about the problem (Beattie, Sale and McGuire 2011).

2 I tend to instinctively endorse Oliver and Hartmann's perspective, when they argue that film viewing 'may have the potential to do much more than provide viewers with feelings of gratification, but may also serve as a means for instigating positive social change' (2010: 145).

3 It is interesting that most US commentators continue to use the term 'global warming' which is recognised as a very unscientific term and tends to also be a politically charged term which is both inaccurate and misleading while also confusing public understanding of science.

4 Leiserowitz, Anthony Yale University http://environment.yale.edu/leiserowitz/climatechange/TDAT
'Climate Change, Vicarious Experience and the Social Amplification of Risk'
   'Research has also demonstrated that the experiential system can have powerful influences on risk perception, decision making and behaviour'. See reports in journal *Environment* 46(9) 22–37, 2004.

5 See proceedings paper from 2009 Science fiction film conference in Chicago, USA delivered by Bob Mellin 'White Flights and the Environmental Minstrel in Wall-E' Purdue University bmellin@pnc.edu

6 The figures would have been significantly higher had not the Chinese government apparently cut short the film's run, reportedly out of fears that it might encourage resistance to development projects and their resettlements schemes.

7 See Elsaesser's 2011 reading of Cameron's motivation. Incidentally, in *Hollywood Utopia* (2005), I examined Cameron's *Titanic* as potentially ecological in its premise/execution. His oeuvre has come a long way however towards explicitly foregrounding an ecological agenda.

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# 23

# NATURE, ENVIRONMENT, AND ADVERTISING

*Anders Hansen*

## Constructed nature and ideology

A discussion about the role of nature and appeals referencing 'natural-ness' in advertising perhaps needs to start by reiterating the simple recognition of the complex and historically changing meanings associated with 'nature'. Not only does nature figure prominently in our cultural vocabulary and in popular culture, but it means different things, at different times to different people. Cultural critic Raymond Williams called nature '…perhaps the most complex word in the language' (Williams, 1983: 219). He noted how dominant cultural views of nature change significantly over time, although always drawn from a rich and ever-present reservoir of binary opposites, chief amongst which is culture versus nature. The way that cultural views of nature change historically shows not only that the meanings which we associate with nature are 'constructed' (rather than 'natural' or pre-given) but also provides an entry point for understanding the ideological uses of such constructions.

Contrary to its surface appearance of referencing something ontological, authentic, and god-given, nature can be, and has been, used for lending authority to particular ideas, interests, and political objectives. Nature, as Evernden (1989: 164) argues, 'is used habitually to justify and legitimate the actions we wish to regard as normal, and the behaviour we choose to impose on each other'.

Thompson (1990: 66), in his comprehensive discussion of ideology, culture, and media, refers to this as the 'strategy of naturalisation' and others, like Fairclough (1989) and Stuart Hall (1982), have similarly noted the ideological character and centrality of a discourse of naturalisation in media and political rhetoric. Stuart Hall thus notes that media discourse is best characterised, 'not as naturalistic but as *naturalized*: not grounded in nature but producing nature as a sort of guarantee of its truth' (Hall, 1982: 75).

If nature referencing and naturalisation are key rhetorical components of the way in which ideology is communicated, then the semiotic linking of a (romanticised) view of nature *with* a rural (idyllic) past *with* national identity has undoubtedly been one of the most potent ideological uses in the modern age. And nowhere more so than in advertising/marketing, where, as Soper (1995: 194) has argued, 'referencing of nature and the clichés of nationalist rhetoric have become the eco-lect of the advertising copywriter'.

The use of nature and referencing of the natural in advertising may be partly to do with ideological power (selling products or corporate images by invoking the qualities of good-ness, purity, authenticity, genuineness, non-negotiability (Cronon, 1995)) and partly to do with the format constraints of the advertising genre. Thus, the time/space constraints of the advertising format call for the use of easily identifiable and recognisable shorthand symbols, or what Gamson and Modigliani (1989) aptly refer to as 'condensing symbols', and nature and the natural are perhaps amongst the most universally recognisable such symbols.

The chief ideological power of referencing of nature/the natural in advertising derives partly from the complexity and semantic flexibility of these referents, and partly from their predominant 'taken-for-granted' inconspicuousness. The ability of advertising to forge signification links that convey such key nature-related values as freshness and health onto cigarettes and smoking (Williamson, 1978) is perhaps one of the clearest examples of the se-miotic flexibility and power of uses of nature in advertising. Nor has the potential power of nature-referencing/invoking the 'natural' been lost on corporate image advertisers keen to frame and promote their practices and products as environmentally responsible, ethical, and sustainable, as powerfully evidenced in Schneider et al.'s (2016) study of coal industry rhet-oric, studies of BP's image repair strategies after the 2010 Gulf of Mexico oil spill (Schultz et al., 2012; Wickman, 2014), and Schlichting's (2013) meta-analysis of industry framing of climate change.

## Environment and nature in advertising and other media

Numerous studies have documented the considerable increase in news media reporting (and public concern) about environmental issues which happened in the latter half of the 1980s and very early 1990s (Hansen, 2019; see also Goodman et al. in this Handbook). A number of studies have, likewise, revealed some of the trends in representations of the environment, nature, or environmental issues in advertising. Studies in the 1990s (Peterson, 1991; Iyer and Banerjee, 1993; Banerjee, Gulas, and Iyer, 1995; Kilbourne, 1995; Buckley and Vogt, 1996; Beder, 1997) indicate that the increased news and public interest in the environment, seen in the late 1980s, was also reflected in advertising, where so-called 'green advertising' or 'green marketing' became prominent. Much of this advertising latched on to general public con-cerns by labelling products as 'green' and 'eco-friendly' or by emphasising measures taken to reduce the potential impact that advertised products might have on the environment. The trend also extended to corporate image advertising stressing the environmental credentials of large companies, and to advertising more directly in the tradition of persuasive information/education campaigns in the form of government and local authority advertising campaigns designed to promote recycling initiatives or environmentally responsible behaviour (Ruth-erford, 2000).

Much of the research on images/messages regarding the environment has focused on 'green' advertising/marketing and on 'greenwashing' (see Netto et al., 2020, for a systematic review of research on greenwashing), interpreted as the use of deceptive claims or disinfor-mation 'regarding the environmental practices of a company or the environmental benefits of a product or service' (Baum, 2012: 423). In a study of print advertisements in leading news, business, environmental, and science magazines in the USA and UK in 2008, Lauren Baum (2012) found three-quarters of 'environmental' advertisements to contain one or more aspects of greenwashing, and she argues that without stricter regulations, a trend of increas-ing use of green or environmental appeals – and of greenwashing – in product and corporate image advertising is set to continue unchecked. As shown by Netto et al. (2020) in their

systematic review of research on green advertising, the use of 'green' or environmental appeals in advertising continues to feature prominently, bringing with it increasing calls for and attempts at implementing both voluntary and statutory codes and regulation (Pezzullo and Cox, 2022).

The overall trend indicated here is confirmed by a comprehensive study by Lee Ahern and colleagues (Ahern et al., 2012; Bortree et al., 2013) of environmental messages in advertisements in The National Geographic magazine over the three decades from 1979 to 2008. Ahern and colleagues show a significant increase in corporate environmental responsibility communication over the three decades, as well as considerable changes in the framing of environmental messages. They particularly note an increasing emphasis on promoting the environmentally positive actions ('doing more') of corporations rather than an emphasis on conservation ('taking less from the earth').

In an exemplary earlier study Howlett and Raglon (1992) chart the changing uses of appeals to nature and 'the natural' in advertising during the 20th century. They show that while product association with nature and the natural changes little, 'environmental' corporate image advertisements gain momentum principally since the early 1970s, as companies start to 'portray themselves as nature's caretakers; environmentally friendly, responsible, and caring', resulting, as they continue, 'in the use of more scenes from nature (…) and an almost total elimination of the factory and machinery visuals which were standard fare in the corporate image ads of the 1950s' (Howlett and Raglon, 1992: 55)

These and other studies (Atkinson, 2017; Netto et al., 2020) then confirm the continued and increasing reference to environment, nature, and environmental issues in advertising, the prominence of corporate voices in such advertising, and the increasing use of greenwashing frames which show products and corporations as environmentally friendly and responsible.

While the prominence of explicit appeals to 'environmentally responsible' behaviour in advertising goes up and down in ways seemingly not dissimilar to the ups and downs seen in news media attention to environmental issues (see Goodman et al. in this Handbook), there is considerable evidence that references to nature and the natural have been prominent throughout the 20th century and continue to be so in the 21st century (Howlett and Raglon, 1992; Goldman and Papson, 1996; Rutherford, 2000; Hansen, 2002; Ahern et al., 2012; Kvidal-Røvik, 2018; Schmuck et al., 2018; Abraham, 2020; Andersson and Smith, 2021; Naderer and Opree, 2021).

Goldman and Papson (1996) argue that nature was prominently used in advertising in the 1920s and 1930s in a nostalgic way that was itself a response to the economic and the social–psychological crisis of the 1920s. Tracing the general trends in uses of nature in advertising up through the 20th century, Goldman and Papson note that '[t]he nostalgia for nature evident in the advertising of the 1920s and 1930s gave way to the fetish of gadgetry' (p.191) for the middle decades of the 20th century, and not until the 1970s did nature once again take a central position in advertising. While nature is thus seen to have been prominent in advertising throughout the 20th Century, Goldman and Papson also point out that the genre known as 'green' advertising did not emerge until the 1980s.

Taking his point of departure in the now famous Crying Indian advertisements of the early 1970s, historian Kevin Armitage (2003) shows how (American) popular culture has long used the stereotype of the noble savage to epitomise and articulate a nostalgic view of unspoilt nature and of an idealised past of harmony between man and nature. Armitage argues that 'The fascination with nature and the primitive that marked turn–of–the–twentieth–century American culture was rooted in a larger ambivalence about modern life' (p.73) – not unlike the disillusion with modernisation identified by Raymond Williams (1973) in the

British context – but crucially, as Armitage argues, the fascination with nature and the primitive 'did not involve a rejection of civilisation, but rather an accommodation to modern life that was simultaneously nostalgic and progressive, secular yet spiritually vital' (pp. 73–74). Armitage shows that the idealised referencing of nature – through or with representations of the American Indian – in advertising was well under way towards the end of the 19th century.

That these kinds of uses of nature imagery go well beyond reflecting broad social and cultural trends and are in fact highly 'ideological' in the sense of being deliberately deployed for strategic communicative purposes is eminently shown in the more recent analysis by Michael Mann (2021). Also referencing the rhetorical power of tapping into the enduring nature/primitive/'noble savage' myths in the Crying Indian environmental advertising campaign, he reveals this as an early and potent component of a corporate 'deflection' strategy, cleverly channelling/framing public environmental – and indeed environmental pressure group – concerns to put the emphasis on individual behaviour while deflecting attention away from corporate and business responsibility.

In an exemplary analysis of advertisements for pesticides in agricultural magazines, spanning the half-century from the 1940s to the 1990s, Kroma and Flora (2003) demonstrate the changing prominence of three different discourses: in the 1940s–1960s a 'science' discourse articulating the post-war faith in progress through science; in the 1970s–1980s, a 'control' (of nature/the environment) discourse drawing extensively from military/combat control metaphors; through, in the 1990s, a 'nature-attuned' discourse reflecting environmental sensibilities – concerns about sustainability, protection of and harmony with nature - emerging in the latter half of the 20th century. They conclude that 'changing images reflect how the agricultural industry strategically repositions itself to sustain market and corporate profit by co-opting dominant cultural themes at specific historical moments in media advertising' (Kroma and Flora, 2003: 21). Comparable findings show how advertisers adapt their uses of nature imagery to dominant cultural and national discourses emerge from a study of Israeli advertising (Dali, 2019). Here, an analysis of commercial print advertising between 1951 and 2014 shows a change from nature represented from the 1950s through the 1970s as national (Israeli) landscapes and 'viewed as designed to serve people', while from the 1980s onwards, the emphasis moves towards a 'more empathic and sympathetic' view of nature as global, with increasing emphasis on representations foregrounding 'escapism and the desire to observe idealistic and idyllic nature' (Dali, 2019: 339).

Wernick's (1997) comparison of the 1950s and 1990s advertising adds further confirmation of the changes in the ways in which nature imagery has been deployed in advertising. Where the 1950s advertisements celebrate 'the fruits of industrial civilisation' (p. 209), gadgetry, technology, science, and progress, the 1990s adverts appeal to nostalgic ideas of nature and the past, a nature and a past that exist only in myth, '(…) something to be recovered rather than attained' (p. 210).

Drawing on the arguments presented by these authors, it seems then that a key difference in the uses of nature between advertising of the 1940s–1970s and advertising of the late 20th century is one of perspective: the adverts of the middle part of the 20th century in short *look forward*, with optimism even, to the progress and prosperity of the techno-scientific urban society, while the perspective of the late 20th century is one of *looking back* – to recover a lost idyll, harmony, authenticity, and identity of a (mythical) past. Wernick refers to the 'progress myth' of the 1950s advertising; others, notably Gamson and Modigliani (1989) in their study of the framing of nuclear power since the mid-20th century in popular culture and in public opinion, refer to this as the 'progress package' – a common and prominent frame

in media and popular culture accounts involving the relationship between technology and nature, and valorising technological, economic and scientific progress above concerns for the environment or nature. Wilson (1992) likewise identifies this period as one in which the relationship with nature was one of domination and greed, where the urge to 'acquire and consume' (p. 14) far outpaced any hint of concern about the environment, limited resources, or the protection of nature.

Rutherford (2000) introduces his own label for advertising celebrating the progress myth: 'Technopia'. In his historical sweep of what he broadly terms 'advocacy advertising', he implies a similar trend to that identified by Wernick, Goldman and Papson and others. He contrasts the 'Technopia' type of advertising – advertising which principally promotes a belief in the scientific and technological control and domination of nature as synonymous with progress and development – with what he terms 'Green Nightmare' advertising. 'Green Nightmare' advertising is advertising, which stresses and calls public attention to the 'Dystopia' – the destruction of nature, the environment, and our entire habitat – resulting from the un-checked and wasteful production and consumption practices characteristic of late modernity.

In very general terms, Rutherford's analysis maps onto the time-line indicated above, namely, with 'Technopia' advertising most prominent in the 1960s–1980s, and 'Green Nightmare' advertising prominent from the 1970s onward. If Rutherford's categories seem to overlap considerably, it is perhaps confirmation, not only of a diversification of discourses on nature, but of a public sphere marked increasingly by discursive competition over the framing and meaning of nature generally, and more specifically of the framing of science, technology and progress in relation to public conceptions of nature.

In summary, then, it would seem from the work of the authors discussed above that nature imagery has been a feature of advertising since at least the early part of the 20th century. It is also clear that the particular deployment and constructions of nature in advertising and other media have, broadly speaking, oscillated between, at the one extreme, a progress-package-driven view of nature as a resource to be dominated, exploited, and consumed, and, at the other extreme, a romanticised – and often retrospective – view of nature as the (divine) source and embodiment of authenticity, sanity, and goodness, to be revered and protected. However, as the following will show, there are significant further layers and inflections to how discursive constructions of nature and the natural are deployed in advertising and other mediated communication, including in relation to globalisation and national/local/cultural and other identities.

## Nature, nostalgia, and identity

Nature imagery in advertising of the late 20th century is, as we have seen above, often deployed in relation to a retrospective look, a yearning for the 'idyllic past'. Nature imagery in this context is used to construct a mythical image of the past (including childhood) as a time of endless summers, sunny and orderly green landscapes, and, perhaps most importantly of all, as a time and place of community, belonging, and well-defined identity. Several researchers have referred to this view as one of 'nostalgia' (e.g. Davis, 1979).

The nostalgic view of the past, as enacted through the use of nature imagery in advertising, is not merely a longing for a mythic past, but it is very much also a romanticised view of the past. In its use of nature imagery, it draws particularly on the romantic view of the countryside, the view constructed not least by the poets (e.g. William Wordsworth, Samuel Taylor Coleridge) and painters (e.g. John Constable, J.M.W.Turner) of the Romantic period.

As Williams (1973) has pointed out, the growing cultural importance of a romanticised view of the countryside perhaps not surprisingly coincided with a period of immense social upheaval, urbanisation, migration to the cities, and the rapid decline of a rural/agrarian economy.

Against the tremendous social, economic, and political upheaval characterising much of the 20th century, not least the first half, it seems perhaps hardly surprising that advertising should respond with romanticised images of a more natural, rural, countryside past, where identities seemed more firmly fixed, if only through 'knowing one's place' in the highly hierarchical structure of rural society. What is particularly ideological about this reconstructed past is the way in which the deeply hierarchical structures are either glossed over *or* romanticised and portrayed as indeed natural, desirable, and harmonious.

The romanticised construction of nature and the uses of idyllic nature in advertising are then not just a matter of advertising responding to a public sense of alienation or a public search for identity. They are an ideological reconstruction in the sense that they naturalise, and sometimes even celebrate, a deeply stratified society. There are, in other words, important social class, race, and gender dimensions to these uses of nature.

Phillips et al. (2001) in their analysis of the construction of rural/countryside/nature imagery in British rural television drama thus show that the dominant construction of a rural idyll goes further to 'also enact particular social identities, including, but not exclusively, those of class' and that the class identity enacted is predominantly a middle-class identity. Others (Thomas, 1995; Scutt and Bonnet, 1996) have similarly commented on the social class, race, and gender dimensions of television and print media constructions of the countryside and nature.

Machin and Chen (2021: 10) show how constructions of nature and the natural in food packaging and promotion are re-worked to appeal to a new Chinese middle-class identity. They find a romanticised re-construction of 'the natural and nature, shifting from earlier associations with the rural as backward, insular, and low status'. Romanticised re-constructions of nature and the natural, and of rural China as the guarantor of national identity, are appropriated to signify middle class (and by extension, global, progressive, cosmopolitan) identity while preserving national/cultural (Chinese) identity.

With a particular focus on racial exclusion in American magazine advertising from 1984 to 2000, Martin (2004) points to the racial dimension to nature imagery: 'Advertisements taking place in the Great Outdoors or featuring models participating in wilderness leisure activities rarely include Black models, while advertisements featuring White models regularly make use of Great Outdoors settings and activities' (p. 513). He notes that the dominant view of nature/wilderness in advertising is a white Eurocentric view that finds little resonance amongst Black and Native American audiences. And these representations continue to persist in public-mediated communication such as in outdoor magazines (Frazer and Anderson, 2018) and in the promotional material of nature conservation organisations and national bodies responsible for national parks (Kloek et al., 2017), with implications for how public recreational spaces are perceived, constructed, and identified with by different publics (Armstrong and Greene, 2022; Xiao et al., 2022).

## Nature, globalisation, and national identity

A considerable body of literature has pointed to the links between particular constructions of nature and national identity. MacNaghten and Urry (1998), drawing on a broad range of work from geographers, sociologists and historians, note how every nation celebrates its

particular nature. 'National natures' may not seem particularly 'constructed' where these bear a seemingly obvious relation to the particularly striking features of those natures (the Alps of Switzerland, the fjords of Norway, the forests and lakes of Finland, etc.). However, on closer historical scrutiny, it becomes clear that 'national natures' are indeed very much 'constructed'. This is made particularly clear in historian Simon Schama's insightful analysis of *Landscape and Memory* (Schama, 1995), in which he demonstrates the particular historicity and political role and construction of nature in the culture and politics of a range of nations (with examples ranging as widely as the 'forest' in German culture and history to 'wilderness' and national parks in the United States). Geographers, historians, sociologists, and media researchers in Britain have commented on the close links forged, from the 1800s onwards, between national identity – particularly that of the English and Englishness – and a romantic view of nature.

Thus, since the late 1800s, the dominant image of Englishness in literature, art, and popular culture generally has become one of equating Englishness with the countryside, the countryside as the true home of the English (seen as white and middle-class) and the essence of Englishness. However, as Thomas (2002) amongst others has noted, the 'association of national identity with a country's rural roots is not confined to Britain, and may be connected to the cultural homogenisation which is one of the outcomes of globalisation' (p. 34).

Following a similar line of argument, Creighton (1997), looking at domestic tourism and popular culture in Japan, demonstrates a renewed search for authentic Japanese identity as manifested in the increasing popularity of 'traditional' rural Japan. She describes the 'retro boom' – a looking back to the past and a search for authentic Japanese identity – experienced in Japan since the 1970s as a reaction to 'the perceived threat of cultural loss to which the processes of modernisation and Westernisation have subjected modern Japan' (p. 242). As in British advertising and popular culture, the 'place' of authentic national culture is seen as the countryside or traditional village.

For the alienated urban masses, the search for identity is supposedly answered through the travel, as promoted by tourism advertising, 'back' to the true time and place of Japanese culture and identity, the romanticised rustic countryside setting. But, as Creighton demonstrates, this journey is increasingly commodified in popular culture, department store displays, and consumer goods, so that the busy urban dweller need never leave the city in order to buy into the retro boom construction of Japanese cultural identity.

As in the West, the achievement of advertising deploying this kind of nature imagery is to channel the yearning for authenticity or identity or the pure goodness of nature into consumption: purchasing the advertised product becomes a means of 'buying into' the identity or the authenticity ostensibly anchored in the idyllic rural past.

While, as indicated by MacNaghten and Urry (1998) and others, there are different 'national natures', it is perhaps testimony yet again to the semantic flexibility hinted at by Williams (1983), that some have implied a degree of global universality in 'nature imagery' and cultural constructions of nature. Howlett and Raglon (1992) thus argue that the attractiveness of nature imagery and symbolism to advertisers stems from the simple recognition that '[N]atural symbols and metaphors are among any culture's most easily understood ones' and they 'tend to be long-lived and their meanings widely accessible' (p. 61).

The similarities noted above between British and Japanese linking of national identity with a (romanticised) rural, idyllic, countryside past likewise suggest an element of culture-transcending universality. In a comparative study of cultural values in American and Japanese advertising, Barbara Mueller (1987) found that on the two nature-related dimensions investigated ('oneness with nature appeals' and 'manipulation of nature appeals') there

was remarkably little difference between the advertising of the two countries. In an interesting follow-up study twenty years later, Okazaki and Mueller (2008), comparing findings for 1978 advertising with 2005 advertising in Japan and the USA, found the 'oneness with nature appeal', identified as more characteristic of Eastern culture, continued to be prominent in Japanese advertising, but had dropped significantly in American advertising. By contrast, 'manipulation of nature appeals' had increased considerably in Japanese advertising, but were rarely deployed in US advertising of either period. The overall conclusion from the follow-up study was that advertising appeals in the two countries had become increasingly similar.

In her study of cultural values in Chinese and American television advertising, Carolyn Lin (2001) notes that previous studies have shown that 'advertisements in China are more likely than Western advertisements to use appeals of traditional values such as status and oneness with nature, whereas U.S. advertisements reflect such values as individualism and manipulation or control over nature' (pp. 86–87). Her own study likewise confirms that Chinese advertisements are more likely to use oneness with nature appeals than US advertising.

While there is thus evidence from comparative research on advertising of the late 20th century to indicate trends of globalisation, Westernisation, and homogenisation, including in advertising's constructions of nature, studies focused on advertising in the present century point to the parallel use and perpetuation of national/regional/local nature imagery, myths, and symbols to – through consumption of the advertised product, activity or behaviour – build and reinforce distinctive national, cultural, and other identities. In other words, to signal membership – through consumption – of cosmopolitan global modernity, while at the same time preserving the notion of distinctive national and cultural identities. Andersson (2020), in her analysis of food packaging in Sweden, shows how the advertising imagery deployed draws on familiar and 'nationally highly valued ideas of nature' contributing to the celebration and maintenance of the 'image of the prosperous, modern, open, fair, equal and responsible old Swedish nation' (p.9). She shows how the advertising imagery and constructions of nature draw closely on the historical ideals of the modern Swedish state of the 20th century, including the close interweaving of nature, Swedish landscapes, and political notions of freedom and egalitarianism. Deploying representations of nature as constituents of national identity gets further pronounced in times of political upheaval and change. Thus, Andersson and Smith (2021), in a comparative study of the advertising messages communicated on butter packaging in Sweden and the UK, find that following the Brexit vote in the UK in 2016, the traditional depiction of 'green rolling landscapes' (p. 19) is further complemented with an enhanced use also of other national symbols, particularly the Union Jack.

Machin and Chen (2021), analysing food packaging and the promotion of healthy diets to the new Chinese middle classes, likewise identify how global cosmopolitan identities around nutrition and environmental issues, here as components of what it means to be part of the modern Chinese middle class, are woven together with symbolic localness and cultural distinctiveness articulated or invoked through recognisable cultural symbols, icons, and representations.

Appropriating, adjusting, and articulating global concerns through a local or national lens extends beyond the commercial objectives of product promotion to the environmental objectives of global organisations such as the World Wide Fund for Nature (WWF). In an analysis of WWF-sponsored environmental public service advertising in China, Puppin (2020: 44) thus identifies the prominent use of so-called 'Chinese elements' – including

representations of nature and animals – to strategically and creatively 'communicate a unique cultural positioning of China in the realm of environmental protection via the (re)appropriation of traditional culture' and 'reinforce national identity' (p. 44).

There is then considerable evidence to suggest that while many similarities exist, the uses and interpretations of nature do indeed vary across different cultures, that nature is indeed not only culturally constructed but also culturally specific in its construction/interpretation. Similarities across (Occidental and Oriental) cultures, in advertising and other popular culture constructions/uses of nature are thus more likely to be symptomatic of the increasing globalisation, Westernisation, and homogenisation, characteristic of modern advertising trends, than of some universality of nature as a sign and metaphor.

A particularly interesting – but somewhat different – inflection of nature and national identity in advertising is the use of national stereotypes. Advertising, as Armitage (2003) has shown, has long articulated and exploited the popular culture stereotype of the American Indian as the idealised 'child of nature', epitomising a nostalgic anti-modern sentiment and a yearning for a lost harmony between man and nature. But this type of inflection also extends beyond peoples (the American Indian) to national stereotypes. A particularly potent example is the referencing of the Irish and Irishness in the global marketing of the Irish Spring soap by the American Colgate-Palmolive company. Elbro (1983) and Negra (2001) both offer insightful analyses of the ways in which the Irish Spring advertisements draw on and reinforce the (stereotypical) linking between nature (pure, cleansing, and untainted by modernity), the (idyllic) past, nation, and national (Irish) identity. As in much other popular culture construction of national identity (see Creighton on Japan, referred to above), nostalgia plays a key role, in that the linking or association also implies that Ireland is a place where the (natural) qualities of the past can still be found, visited, and consumed, or alternatively, bought into through consumption of the advertised product.

The Irish Spring soap advertisements have used for example idyllic images of the Irish countryside (winding lanes, hedges, fresh and green) and the Irish (jolly courting couples in rural attire) to associate the qualities of freshness, authenticity, genuineness, romance, etc. with the advertised product. The advertisements trade on and reinforce a nostalgic stereotypical image of Ireland as a 'non-industrialized paradise populated by simple country folk' (Negra, 2001: 86) and of Irishness as synonymous with honest, authentic, natural, uncomplicated, pure, and romantic qualities. Condensing symbols of nation and national identity linked to landscape and the natural environment are of course widely exploited in tourism advertising (see e.g. Urry, 1995, 2001; Negra, 2001; Nelson, 2005; Clancy, 2011; Uggla and Olausson, 2013), and very likely increasingly so, as the popularity of 'nature-tourism' and 'eco-tourism' continue to rise.

## Conclusion

Raymond Williams argued that 'nature is perhaps the most complex word in the language' – the review in this chapter of how nature and the natural have been used and appropriated in media discourse essentially confirms this. It testifies to the signifying flexibility of nature, and to the historically changing underlying views of nature. It is only by examining how discourses of nature change over time that we can begin to understand how they are used ideologically for promoting everything from national/cultural identity and other identities, nationalism, consumerism and corporate identity to framing and circumscribing what kinds of questions can and should be asked about the environment, environmental protection and sustainability.

Invoking nature/the natural in advertising and other public discourse is a key rhetorical device of ideology in the sense that referencing something as 'of nature' or as 'natural' serves to hide what are essentially partisan arguments and interests and to invest them with moral or universal authority and legitimacy.

While explicit environmental messages and 'green' advertising seem to wax and wane in cycles not dissimilar to those identified in news and other mediated communication about the environment, it is clear from the literature examined here that nature and appeals to the natural have been a significant part of advertising since at least as far back as the early 1900s.

The particular deployment and constructions of nature in advertising and other media have, broadly speaking, oscillated between, at the one extreme, a progress-package-driven view of nature as a resource to be dominated, exploited, and consumed, and, at the other extreme, a romanticised – and often retrospective – view of nature as the (divine) source and embodiment of authenticity, sanity, and goodness, to be revered and protected, 'not to be tampered with'.

On the continuum between these extremes lie, as we have seen, a wide range of 'constructions' of nature, including: nature as a resource, good, authentic, idyllic, healthy, spiritual, enchanting, the 'home' of identity, fragile, a threat, a 'proving ground' for both human and product qualities, vengeful, etc. Several authors have indicated that the dominant construction of nature in advertising and popular culture of the late 20th century is one that draws heavily on nature imagery of the Romantic period. It is also one which invokes a nostalgic view of the past, with implications for the public construction of social class, gender, race and, not least, national identity.

Emerging since the first edition of this Handbook, a number of studies have thrown valuable light on how constructions of the natural and nature are deployed in advertising and other mediated communication to appropriate the homogenising trends of globalisation and to enlist national/local/cultural distinctiveness and symbolism in the service of product promotion and consumption. What these studies confirm is the enduring power of deep-seated notions of nature and the natural, and their semiotic malleability and flexibility – and communicative power – in advertising discourse, popular culture, and political communication.

## Further reading

Williamson, J. (1978; reissue edition: 2010). *Decoding advertisements: ideology and meaning in advertising.* London: Marion Boyars.
Judith Williamson's insightful critical introduction to the analysis/decoding of how meaning and ideology are constructed in advertising continues to be one of the best and is as applicable today as it was when first published. See particularly Chapter 4: 'Cooking' Nature, and Chapter 5: Back to Nature.

Atkinson, L. (2017). Portrayal and impacts of climate change in advertising and consumer campaigns. *Oxford Research Encyclopedia: Climate Change Communication*. DOI: 10.1093/acrefore/9780190228620.013.376
Lucy Atkinson offers a comprehensive overview of research on the content and influences – on environmental attitudes as well as consumer behaviour – of green advertising.

Stöckl, H., & Molnar, S. (2018). Eco-advertising: The linguistics and semiotics of green(-washed) persuasion. In A. F. Fill & H. Penz (Eds.), *The Routledge Handbook of Ecolinguistics* (pp. 261–276). London: Routledge.
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# 24

# CULTURAL REPRESENTATIONS OF THE ENVIRONMENT BEYOND MAINSTREAM MEDIA

*Andy Opel*

While many scholars have written about the power of advertising, the appropriation of nature by marketers, the journalistic constraints on environmental news stories, and the power of language to shape and direct our understanding of the natural world, there has been significantly less attention to the environmental images and narratives that occupy emerging cultural spaces such as virtual reality. These cultural threads show up in unexpected places and often echo the themes found in advertising, news media, and popular culture – nature as commodity, nature as divine force, nature as Eden, and nature as virtual reality (Cronon, 1996).

From the pastoral, agrarian images on food packaging to super-saturated images on our computer screen savers, representations of nature pervade our visual world. In addition to news coverage, advertising, film, and popular television, images of nature occur in incidental and emerging cultural spaces, reinforcing a hegemonic formation that is at one and the same time in love with the natural world and at war with the natural world. The contradiction between the ubiquity of images of nature and decreasing time actually spent in the natural world (Louv, 2005) has produced a condition where our daily lives are filled with pristine *images* of wildlife, plants, and landscapes and at the same time, we are experiencing the greatest extinction rate since the dinosaurs died off 65 million years ago[1]. The insatiable desire to consume pictures of nature or to experience exotic environments through a VR headset results in a predominance of incidental images that reveal the enduring power of biophilia – that instinctive bond between humans and other species (Wilson, 1986) – and our deep connections to the natural world.

This chapter explores some of the previous work on incidental environmental representations, examining previous scholarship on a variety of cultural artifacts including computer-mediated representations, games, and virtual spaces. This overview of selected literature on non-mainstream representations of nature is followed by an analysis of immersive media experiences that emphasize the natural world and embody an emerging nature discourse. The everyday ubiquity of screens, the location where we focus so much of our gaze during our waking hours, reminds us of both the widespread consumer narratives that rely on the appropriation of nature *and* the enduring human desire to connect with the natural world.

## Incidental environmental media

In his introduction to his oft–cited volume, *Uncommon Ground: Rethinking The Human Place in Nature* (1996), William Cronon, unpacks a series of maps and signs, revealing the complex encoding of human/nature relations embedded in the everyday objects that surround us. He distills eight themes that dominate the human/nature discourse. Of these, "nature as Eden" is the theme most embodied by the incidental cultural products that form the background of contemporary life in the industrialized North. Cronon describes this narrative as one that "projects(s) onto actual physical nature one of the most powerful and value-laden fables in the Western intellectual tradition" (p. 37). "Edenic narratives" then construct actual places as "perfect landscapes" that are outside of any need for restoration or protection and at the same time beyond reproach, so unquestioningly pristine as to make any thought of resource extraction or human development inconceivable. This pattern of edenic narrative in text and images permeate contemporary popular culture, cutting across media and context, present in the mundane and spectacular spaces of daily life, presenting a recurring theme in the environmental communication scholarship of cultural artifacts.

Cronon also foresaw the emergence of virtual reality as an active site of environmental representation, claiming "nature as virtual reality" as one of his eight themes. Written in 1996, long before broadband Internet and streaming video, Cronon identified the tensions that continue to dominate VR research. "One would think that the virtual would stand in pure opposition to the real, but when you put them next to each other this is not nearly so obvious" (Cronon, p. 45). Research is beginning to demonstrate the positive potentials of VR to promote environmental awareness, showing that "virtual reality could be more effective in changing behavior than other media like text or video" (Bailenson, 2018, p. 118). The power of simulated experiences through VR goes far beyond entertainment and has been shown to be "more powerful than other methods of communicating environmental consequences" (p. 116). VR offers an emerging space where environmental representations have the potential to both entertain and inform audiences in compelling and effective ways.

Previous work has documented the incidental and familiar ubiquitous presence of environmental imagery in obscure cultural locations. For example, Rehling (2002) examined Hallmark greeting cards, finding a predominance of sanitized, edenic images where "the possible dangers present in the wilderness remain obscured" (p. 24). The reproduction of idealized natural spaces creates an environment where "some kinds of wildlife and some types of geographical formations are more likely than others to seem worthy or deserving of preservation and protection (p. 25). The implications of these images are argued to shape "our understandings and meanings of both nature and the human world, with consequences for both" (p. 27). While greeting cards are one small item in a sea of mediation, the accumulation of culturally constructed landscapes and life forms reinforce a consumer worldview that is increasingly attuned to the siren call of consumption and increasingly deaf to the subtle silence of the breeze.

Another example of unpacking a cultural artifact comes from an analysis of the cultural connotations of the board game *Monopoly: The National Parks Edition* (Opel, 2002). *Monopoly* is the best-selling copyrighted game in history and this particular edition embodies the tensions of neoliberalism as the public parks are symbolically subjected to the forces of monopoly capitalism, where the "winner" takes control of all the parks and raises the "rent" to such astronomical rates so as to bankrupt the other players (citizens). In unpacking this familiar game, the theme of decontextualized nature emerges. The names and images of the national

parks replace the familiar names such as Boardwalk or Marvin Gardens, yet there is no other accompanying information about the parks, wildlife, park funding, or other data that might educate the players as they move about the board. This special edition of *Monopoly* was found to "take an interest in the National Parks and the environment and steering that interest back into a capitalist consumer impulse" (p. 42). Again we see the theme of decontextualized nature woven into a familiar cultural product. The implications of this theme include a myriad of missed opportunities to harness the biophiliac impulse to build knowledge and understanding. Instead, the impulse to connect with nature is rewarded with a simulation that redirects the audience attention back toward consumption.

In addition to two-dimensional representations of nature, scholars have also examined the physical spaces of re-created nature. Susan Davis turned her ethnographic gaze to the Sea World theme park in her 1997 book, *Spectacular Nature: Corporate Culture and the Sea World Experience.* Davis analyzes the spaces, performances, and language of the park, revealing a complex web of marketing that works to reconfigure the citizen into a consumer and conveys the idea that "a visit to the nature theme park is a form of action on behalf of the environment" (p. 39). Davis argues that Sea World functions in a long tradition of presenting circus animals while reconfiguring this act of spectatorship into an expression of environmental protection and concern.

Davis positions Sea World as a "definitional project" that works to "model reality by defining what issues are open for consideration, what problems can be solved, and what concepts can be used in thinking issues through" (p. 238). The assumptions built into the physical space of the park are said to reinforce spectatorship and consumption while directing attention away from the systemic problems faced by cetaceans – whales, dolphins, proposes, and the like. In naturalizing a neoliberal worldview, the park is able to capitalize on the display of the ocean mammals while constraining the possibilities for collective action to address the health of marine ecosystems. Davis claims the park creates a narrative where:

> extraction and pollution can never be connected to exploitation in the human world, to inequalities between classes, peoples and nations. At the same time that Sea World and its proliferating cousins erase a human history, they claim to be in and of themselves, a path to preservation, conservation, and environmental action
>
> *(p. 238)*

The park as a cultural object then functions to limit how we think about environmental issues at the same time that it collapses consumption of the park experience into a form of environmental action.

Davis' work lays out familiar themes repeated throughout this literature – themes of constraining the realm of thinkable thoughts while profiting from the biophilic impulse. Although greeting cards, board games, and theme parks may appear disconnected, in these instances they are united by a hegemonic worldview that is dominated by neoliberal marketplace discourse. The accumulation of these incidental cultural projects presents a fairly consistent message about human/nature relations, a message reinforced by advertising, film, and news media.

Building on Davis's work, Opel and Smith analyzed the virtual theme parks built by the videogame *ZooTycoon* (2004). In the case of *ZooTycoon,* the beauty and detail of nature are reduced to banal icons whose primary purpose is to generate revenue for the virtual zoo. Players' sole measure of success is measured in dollars, resulting in a game that "encourages human expansion, monopolization of space, and creation of a capitalist place. It subjugates wild animals as menial laborers for our own entertainment and suggests that manipulating

the environment any way possible to achieve this is acceptable" (p. 117). The game becomes a platform for enlisting nature, and human interest in the natural world in the service of capitalism and resource exploitation. Instead of providing in-depth information about animals, habitat, and wildlife conservation, the game becomes a managerial chore where appeasing customers desire for new attractions trumps the comprehension of animal needs and desires. Success is measured in dollars generated by your virtual park, positioning players in the role of a corporate manager as opposed to veterinarian, conservationist, or biologist.

Continuing in the analysis of virtual nature, Clark (2011a, 2011b), examined the natural constructions found in the virtual world *Second Life*. What he found was a vast world where participants had gone to great length to recreate familiar environments, from pristine beaches to redwood forests to dense jungles. These virtual environments are said to depict tourist destinations, spaces for virtual human relaxation and meditation. The impulse to recreate virtual nature in the idyllic vision of unspoiled places is part of a long tradition of imaging nature as a place apart, a place devoid of traces of human intervention. The irony being that this virtual space is the embodiment of human construction, yet the players strive to recreate a hyper-reality that portrays the sort of untrammeled places that are disappearing in the real world. What is troubling about Clark's findings is that although *Second Life* is an open platform that allows users to build virtual worlds to their own specifications, users invariably revert to an anthropocentric, consumer perspective. "There is a continual repetition, through connotation, of the notion that Nature is a commodity for purchase and use by humans" (2011a, p. 58).

The accumulation of scholarship around nature and popular culture reveals a consistent pattern where representations of nature reinforce the idea of harnessing nature in the service of the maintenance and expansion of neo-liberal economic growth and associated emphasis on consumer behavior over public policy solutions. Hansen and Machin (2013) reiterated this in their evaluation of environmental representations.

> Visual representations of the environment tend to be decontextualized and aestheticized in ways that enhance that flexible and versatile use across different genres of communication while also affording the basis for flexible new significations, as well as ones that are firmly anchored in culturally deep-seated/resonant discourses on nature and the environment … In all cases, representations appear to favor individual responses to environmental problems rather than those that call for major structural changes in terms of the way in which we organize our societies and the resource greedy nature of capitalism.
>
> *(p. 157)*

What the collection of scholarship reveals is the ever-expanding contours of what atmospheric chemist and Nobel laureate Paul Crutzen refers to as the anthropocene, a new geologic era defined by the facts that "human-kind has caused mass extinctions of plant and animal species, polluted the oceans and altered the atmosphere, among other lasting impacts" (Stromberg, 2013). This pervasive condition is accompanied by a proliferation of nature representations that belie the reality of the anthropocene yet affirm the strength of the human/nature connection.

## Techno biophilia: immersive experience and virtual nature

As media convergence has blended the realms of film, television, and the Internet, our screen time has become an increasingly complex site of work and play, education, and entertainment. The result is that virtual representations of nature are far more ubiquitous than the

unique virtual spaces such as *Second Life.* As virtual reality headsets such as the Oculus Quest have become available, an expanding audience is able to access a growing body of immersive media products that focus on environmental experiences.

VR is being used as a tool to help audiences connect with remote environments and experience the flora and fauna of those far away places. One example, *Sanctuaries of Silence* (2018) uses 360 footage of acoustic ecologist Gordon Hempton as he documents sounds in the Hoh Rain Forest on the Olympic Peninsula. Said to be one of the quietest places in North America, this forest is "increasingly polluted by noise". Challenging the overreliance on images this medium is known for, this VR experience is designed to bring the audience to the forest, asking them to "consider what would be lost in a world where silence has gone extinct". Audio of the natural world, coupled with immersive 360 videos of the lush temperate rain forest becomes a mediated pathway to connection. "The simple act of listening to the natural world can profoundly impact our relationship to place, rooting us in a presence that we otherwise often take for granted" (*Sanctuaries of Silence*, 2018).

In *Greenland Melting,* a climate change project produced in partnership with Nova and Frontline, Nonny de la Peña used a 360 camera mounted on a helicopter, to document the Greenland ice sheet. This footage was then used to create a virtual experience where the viewer flies in the helicopter and encounters a virtual scientist who explains how the "glacier has melted more in past 15 years than in the previous 70 years" (de la Peña, 16:47) In researching audience response to *Greenland Melting,* de la Peña found that the immersive experience "demystified the science" and gave audiences a better idea of the work scientists are doing and how they are coming to their conclusions about climate change. This is an example of "embodied digital rhetoric" where VR allows the viewer to "pass through the screen and become present as witnesses to a nonfiction story" (de la Peña, 2014). This emerging medium is presenting new opportunities for media makers to communicate climate science that may avoid some of the polarizing responses to more traditional climate change media.

Similarly, Concordia University professor and filmmaker Elizabeth Miller created *Swampscapes,* a VR experience that takes audiences into the heart of the Florida Everglades. Coupled with educational supplements, this experience aims to "build 'swamp literacy' around the vital role these wetlands play in our lives" (*Swampscapes*, 2021). In addition to an interactive VR documentary, this project included a website, linear film, and photo exhibition, all "intended to bring much-needed attention to the disappearing swamps, as well as to understand the most effective approaches to educating users" (*Swampscapes*, 2018). Coupling immersive 360 video footage with science and storytelling is opening up new opportunities to bring audiences to remote locations, allowing them to experience the sights and sounds in new ways that expand the reach and impact of traditional media.

These immersive experiences of virtual nature offer a paradox where they both offer expanded opportunities for mediated connection to remote and inaccessible environments at the same time that they are yet another screen that embodies all the ecological impacts of digital media technologies. Markowitz et al. (2018) argue that "learning about the consequences of climate change should occur in immersive VR because participants will experience negative environmental events first-hand" (p. 4). The slow moving, often invisible changes associated with climate change offer unique potential for VR to allow audiences to experience tens of hundreds of years of change in a matter of moments. In the case of ocean acidification, the subtle changes in the acidity of the ocean are imperceptible to most people but are having significant effects on corals and other marine life. When audiences moved

within the space that looked and behaved like a real underwater reef made it easier for people to elaborate and understand the consequences of climate change, and the more that people explored in VR the more they benefited from the virtual experience

*(Markotwitz et al., p. 17)*

Immersive media offers great potential as a supplement to traditional learning about the myriad impacts of a changing climate.

Because of the slow moving and often imperceptible impacts, climate change has been a focus for many VR content creators. In 2020, the MIT Open Docs Lab curated a list of 10 "projects related to environmental issues, including, among others, virtual experiences in our polluted oceans, augmented urban environments with distant sounds of climate destruction, and collective stories and observations by those most affected" (Let's Not Forget the Climate Crisis, 2020). This collection of immersive experiences focuses on more independent productions informed by academic creative and theoretical concepts and processes, revealing the accessibility of these tools for both content creation and distribution. As VR cameras, audio, and viewing technologies become more affordable, more diverse content will expand the possibilities of this emerging media form. These environmental representations become another manifestation of what Sue Thomas calls "technobiophilia, the innate tendency to focus on life and lifelike processes as they appear in technology" (2013, p. 12), where audiences come to prefer simulated nature over the hot (or cold), bug infested, dirty, muggy experience of the real world.

## Discussion and conclusion

The easy and all too simplistic analysis of these virtual reality experiences is to claim a corporate/economic appropriation of nature and redirection of an interest in the natural world back into a consumption act that contributes to the further destruction of that natural world. This is definitely part of what is going in and through these products and the myriad other products that enlist nature in their advertising and marketing campaigns. This is what filmmaker Robert Kenner (2008) calls "the veil"[2] – the intentional, commercial/corporate use of images that appeal to our attraction to a simple, clean, environment unburdened by the demands of 7 billion humans on the planet. By experiencing virtual nature, audiences avoid the travel through the industrial landscape to reach the actual pristine environment. Spaces, animals, and people are presented out of context, allowing audience to drop onto a glacier and encounter elephants or lions in up-close virtual space. This intimacy and feeling of instant transportation elides the wider conditions or a melting glacier or a shrinking animal habitat.

In addition to the commercial appropriation of nature is a recognition of the human/ nature connection that produces this insatiable desire to gaze at nature and connect with the natural world despite our lifestyles that include less and less time outside. This yearning is part of what psychologist Glenn Albrecht (2005; Albrecht et al., 2007) calls, "solastalgia" or "the pain experienced when there is recognition that the place where one resides and that one loves is under immediate assault … a form of homesickness one gets when one is still at 'home'" (Smith, 2010; see also Cantrill and Budesky in this Handbook). Where Albrecht identifies the psychological stress that results from a changing physical environment, the concept can be expanded to include the cumulative knowledge of global changes taking place across the atmosphere, habitats, and species diversity. The slow drip of environmental bad news is the context for these pristine images, idealized representations that work to combat the pain of recognition of the realities of the anthropocene and all its' implications.

When Mitchell (2005) asks, "What do Pictures Want?" he confronts the "power of idols over the human mind … their capacity for absorbing human desire and violence and projecting it back to us" (p. 27). In our case, we also want to flip this question back to, 'What do humans want from pictures?' The sanitized, decontextualized images of nature that permeate our culture serve a purpose and that purpose is in part to salve the longing to be in nature, outside, away from consumer culture and in part as a palliative antidote to the steady drum beat of data pointing to environmental collapse that comes through news media and political debate. While these cultural objects reveal the tensions of human/nature relations in the western world, they offer hope in their ubiquity. If individual or collective change is going to occur around climate change or mitigating the worst impacts of the anthropocene, this change will have to come in part from our biophilia-inspired impulse to connect with the species that share fragments of our DNA. Fragments of this shared legacy are present in these images and VR experiences. It is up to us to turn away from the screen, step outside and see the real world so that we can begin to name the plants and animals around us as easily as we hum the jingles of the hucksters.

## Notes

1  http://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/
2  The chapter "The Veil" in the film, *Food Inc.,* 2008, Magnolia Pictures begins at 01:16:10 and continues to 01:24:14.

## Further reading

Meister, M., and Japp, P. M. (Eds.) (2002). *Enviropop: Studies in Environmental Rhetoric and Popular Culture.* Westport, CT: Praeger Press.
This edited collection marks one of the first attempts to identify and analyze the environmental representations in non-traditional cultural crevices. The themes and patterns identified in these essays have been echoed and expanded throughout the literature in the years since this work first appeared.

Thomas, S. (2013). *Technobiophilia: Nature and Cyberspace.* London: Bloomsbury Academic.
Thomas interrogates a broad range of sites where nature and computers converge as she traces the history and possibilities of virtual nature. Thomas integrates a personal perspective into the analysis, avoiding the sometimes over-determined outcomes of political economy and cultural studies as she proposes possible positive outcomes of expanding virtual environments.

Parker, L. J. (2002). *Ecoculture: Environmental Messages in Music, Art and Literature.* Dubuque, IA: Kendall Hunt Publishing Co.
Aimed at advanced secondary or undergraduate students, this book offers a wide range of excellent exercises that help reveal the environmental messages found across a broad range of cultural products. The exercises and accessible reading make this a great introduction to environmental cultural analysis and applied cultural studies more broadly.

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# Social and political implications of environmental communication

# 25

# MAPPING MEDIA'S ROLE IN ENVIRONMENTAL THOUGHT AND ACTION

*Susanna Priest*

## Introduction

Scholars know a good deal about how media messages influence people, even though these influences are generally less strong than is sometimes assumed. Arguably, the media's most-studied and best-established effect is that of "agenda setting" (McCombs and Shaw 1972). Put most simply, this means that the more attention the news media give to a particular issue, the more important media consumers think the issue might be. Conversely, if media do not cover an issue at all, many people simply would not know about it. This is especially the case for environmental issues, which can often be invisible; we cannot actually see many kinds of pollution such as heavy metals in a water supply, for example, and while the effects of climate change are all around us, we cannot directly see the climate changing or observe greenhouse gas concentrations without instrumentation. If symptoms of pollution such as brown skies or dirty water are not obvious, environmental problems can go unrecognized. Even if people are getting sick, it may be a mystery as to why. Receding ice, rising sea levels, desertification, vanishing species (as well as invasive ones), flooding and draught, and erosion of topsoil affect all parts of the world due to climate change, but we will not necessarily be aware of these effects even if they are "close to home." Environmental reporting is a crucial component of society's response to these and many other environmental problems: If we do not know that the problems exist, we cannot motivate people to act to address them.

Most analysts do not attribute the recognition of problems solely to the media, however. The idea of "agenda building" (Cobb and Elder 1971; Lang and Lang 1981), as opposed to agenda *setting*, captures the idea that it is the collective actions of many societal institutions that together result in society's directing its attention to particular problems at a given point in time. Environmental and consumer advocacy organizations, conservation groups, corporations whose work affects the environment (whether in positive or negative ways), government agencies, universities, and other research-oriented institutions, and a host of similar institutional players all influence one another – and contribute to our collective sentiment that a particular issue constitutes a "problem" that we need to address. Just as for other social problems such as poverty, racism, or crime, both the definition of the problem and the attribution of responsibility or blame should not be taken for granted. Arriving at such conclusions is the result of complex social processes. The media agenda itself is heavily

influenced by the actions of other "players." Many times these actions take the form of what have been called "information subsidies" (Gandy 1982) that influence, in turn, the media agenda, such as a press release about an environmental issue. Information subsidies may also influence the "framing" or the definition of the problem contained in a news story or other account, not just its prominence.

The research literature offers many insightful case studies that look more closely at these relationships with respect to particular issues involving the environment and risk. For example, the interaction between the Natural Resources Defense Council, the US Environmental Protection Agency, the apple industry, and the newspaper industry that created the initial public reaction against the use of the pesticide alar on apples in 1989 has been studied in detail by Friedman et al. (1996), who concluded that the coverage was often superficial, especially outside of apple-growing regions, and often failed to focus on actual health risk information. Similarly, Nucci, Cuite, and Hallman (2009) studied the dissemination of information about *Escherichia coli* contamination of spinach and similarly conclude that the diffusion of vital information about the outbreak was less than ideal. So, on the one hand, the media play a vital role in alerting people to the existence of environmental threats (in both of these cases, threats to the safety of the food supply, which surely would be expected to be a source of intense audience interest). However, on the other, the most important risk information may not be getting through. Social media present new opportunities along these lines; Jahng and Lee (2018) document the role of Twitter use by activist scientists mobilizing others in the wake of the Flint, Michigan, crisis involving lead-contaminated water.

The contemporary economic and technological transformation that the media are now undergoing has introduced new issues and is reshaping institutional structures. Economic pressures are reducing the work force in traditional journalism, while also opening up new opportunities. While statistics are hard to come by, specialized journalists (environment, science, and health) seem to be particularly threatened as news organizations lay off workers. Environmental reporters may be joining health and science reporters in being seen as an expensive luxury in newsrooms, meaning more and more stories about environment could be covered by general assignment reporters for whom all this is unfamiliar territory. And the new opportunities, which generally involve new Internet-based media, may be very good for democracy in terms of the proliferation of voices, but may also dilute the impact of informed voices, making it more difficult for information consumers to discern what points of view should be deemed legitimate and which "truths" are simply made up to fit someone's preconceptions – or to serve their interests. We now refer routinely to information "bubbles" that contain like-minded audience members while limiting exposure to other points of view.

According to the Pew Research Center, newspaper newsroom employees had been cut by 30% between 2000 and 2013 alone, cable coverage of live events during the daytime had also fallen by 30%, and entities seeking to push information out to the public "have been more adept at using digital technical and social media to do so on their own, without any filter," as well as in getting their messages into traditional media (Pew Research 2014). This lack of filtering was observed, for example, in the US presidential race in 2012, which was characterized by Pew as involving "more direct relaying of assertions…and less reporting." These trends continue and seem equally relevant in more recent years (see Grieco 2020 and other Pew coverage for updates). In today's world, it is sometimes argued that anyone can be a journalist: bloggers, tweeters, activists, scientists, and even ordinary citizens can act as journalists. So can public relations people telling the story from the point of view of a particular stakeholder – and the purveyors of "fake news" and conspiracy theories. The Internet hosts the viewpoints of all these groups and more, and as traditional journalism retreats,

stakeholder-supported websites proliferate. In one highly visible effort, in 2009 research universities in the English-speaking world banded together to create a site designed to publicize their own news – including environmental news – directly to the public (Futurity 2014). On the one hand, this may result in more publicity for important research work; on the other, its governing board is made up of the communication officers of the participating universities, a group with an unambiguous stake in the institutional promotion.

These trends – one economic, one technological, both eroding traditional journalistic practice – may bode well for broader participation in both journalism and policy. Yet observers of contemporary trends might well be concerned that it is too easy, in today's world, for individuals to avoid confrontation with viewpoints incompatible with their own while seeking out "maverick" perspectives that could reinforce their prejudices. People can live in their own realities, in other words, making consensus irrelevant. The practice of "objective" and "balanced" journalism takes on new meaning in this context. Will tomorrow's news consumers continue to limit themselves to information that reinforces their points of view on environmental or other issues? What will be the consequences for democratic debate and consensus building on environmental policy? We do not yet know the answers.

Often missing from studies that focus on media messages about environment and science is a careful account of audiences and how they differ. We do not always fully understand what specific factors cause dynamics such as agenda setting or framing to influence certain people in certain ways. We do know that in order to be motivated to act, people need to recognize the existence of a problem, *and they also need to see themselves as part of the solution.* Media accounts need to make clear to people what they can do – to suggest a clear and realistic path toward action – and why they should do it. This inevitably involves ethical and value-based reasoning, as well as scientific arguments. Journalists, trained to be "objective" in covering other kinds of stories, often shy away from these dimensions. Most traditional (or "legacy") media do not see motivating audience action to be part of their job description. In addition, audiences bring their own ideas into the equation; they are never simply passive consumers of media messages. The venerable tradition of "objectivity" can itself be a problem when it invites journalists to treat all viewpoints equally, even those that oppose scientific truth.

## Varied audiences for media accounts of environmental risk

Historically, we've thought about the "mass" media as having effects on "mass" audiences – and individual differences have been understated and understudied. In fact, audiences for environmental information vary widely, especially within modern pluralistic societies that incorporate great social and cultural diversity. As the "mass" media have faded in importance compared to new media, often Internet based and including "social" media that reach much narrower audiences yet (as with tweets) much more quickly, this old "mass" audience concept is fading as well. At the same time, the roles of the media are shifting as a result of the economic restructuring of the media industry, as well as the rapid proliferation and diffusion of newer media forms. Vastly more choices and channels are available as was the case just a few decades ago, arguably making each one less powerful individually. News audiences' use of digital sources and devices has continued to grow (Pew Research 2014 and subsequent reports).

Some news and entertainment organizations are seeking out new niches – for example, by developing informational websites (Tanner and Friedman 2011) or blogs to supplement traditional news stories. The respected *New York Times* hosts so many affiliated blogs that it

has posted an online directory of them. Scientific magazines and even academic journals – notably *Nature* – have expanded online presence as well. Another strategy is political audience segmentation. Even in the United States, where the goal of journalistic neutrality has been a dominant norm for many decades, a number of news organizations are now seeking to attract and hold audiences by adopting more explicit political positions; for example, Fox News is known as a conservative voice, while MSNBC and (arguably) CNN are seen as liberal.

This shift away from thinking in terms of the old "mass" media has refocused our attention on the fact that there are many audiences, with different expectations and underlying beliefs that strongly influence their media choices and their receptivity to particular explanations. The Internet empowers people to seek out news that interests them. Audiences seek information from different sources, utilize different media, and interpret what they come across in different ways. These dynamics generally involve beliefs and values, not necessarily "facts." We are now in an era where an understanding of audience differences is more crucial than ever to effective media communication.

What do media audiences make of news about environmental risks? Audience members bring their own attitudes, expectations, values, and beliefs about both science and environment to their interpretation of media stories. Dunlap, one of the originators of the New Environmental Paradigm measurement scale, has argued that US culture is inherently resistant to an "ecological worldview" (2008). Long term, these expectations and beliefs are themselves shaped in part by media representations of reality in a process referred to as "cultivation" (see Shanahan et al. in this Handbook). But these beliefs are also shaped by a host of other social and cultural factors. Popular reactions to the environmental and other dimensions of emerging technologies such as biotechnology and nanotechnology, for instance, are strikingly different (Priest 2012). Such differences appear to have deep cultural roots rather than being shaped by exposure to recent media accounts alone, although particular types of media information can undoubtedly resonate with different dimensions of these powerful, yet varied, underlying social and cultural factors. There is good news, though: Most Americans now say protecting the environment should be a governmental priority (Funk and Kennedy 2020).

Although media framing has sometimes been credited (or blamed) with enormous influence over public reactions, direct evidence of this is not easy to find. Even so, the 20th-century emergence of the environmental movement has certainly influenced 21st-century audience receptivity to media claims about environmental issues. As indirect evidence of this cultural shift, some segments of the corporate world have undergone a shift to "green" advertising and public relations. Whether this trend can help to cultivate and reinforce a "greener" attitude toward consumer choices or is simply insincere "greenwashing" is a matter of considerable debate. Dahl (2010) argues that the regulatory systems of many countries have been unequal to the "greenwashing" challenge and that public confusion, environmental harm, and even risks to public health are the inevitable result. Yet Gaither and Sinclair (2018) have presented evidence that greenwashing is effective with many audiences. But in the end, which interpretation is more convincing likely depends on whether those sending the messages are seen as trustworthy and sincere, on the one hand, or manipulative and driven only by profit, on the other – with the media playing only a supporting role. Different audience members will respond differently to the same message, in other words. Political ideologies could play a lead role here, as they have for the climate.

Issues of interpretation extend far beyond "greenwashing," however. While both practitioners and scholars may be tempted to assume that individual reactions to issues involving

science, including environmental science, can be predicted in a fairly straightforward way on the basis of scientific knowledge, the relationship between facts and attitudes is a complex one across a wide range of issues (Sturgis and Allum 2004). The old "deficit model" idea that teaching about facts will always change attitudes, while it continues to re-appear, is gradually being discarded by communication researchers. Non-environmental examples may help illustrate this. On the science side, popular opinion about cases such as evolution and stem cell research provide examples. Religion and science are certainly not always incompatible, but these well-known examples where they have clashed help to suggest the complexity of the relationship between beliefs and (factual) knowledge.

Some people who have deep religious objections to the idea of evolution (for example, in parts of the US South) seem to understand how scientists think that evolution works perfectly well – the issue is not a knowledge deficit. This may be difficult for others to grasp, but these individuals seem to score better on basic tests of science literacy that do not ask them if they "believe in" or "accept" evolution but rather ask them what it is that evolutionary theory claims (Rughinis 2011). However, surrounding cultural traditions, including the advice of respected leaders, tells them that this idea is incompatible with religious values. They understand the theory but do not accept it, in other words. In the case of stem cell research, the distinction between facts and values is even more clear. Positions against embryonic stem cell research are not based on misunderstanding the science, but of adopting the premise that it is unethical to destroy human embryos, regardless of the goal. It might be possible to persuade some of these individuals otherwise with messages based on the medical promise of the science, but it is not a misunderstanding of that science that led them to object in the first place.

These examples may seem far afield from environment, but they help us to understand how it is possible for some intelligent people, who may be generally knowledgeable and well educated, to reject the scientific evidence on (say) climate change. This issue has a different dynamic from rejecting evolution or stem cell research in that it does not generally have a clear or unified religious basis; indeed, the tradition of stewardship embraced by many religious groups argues for environmental concern and protection, and environmental communicators recognize that religious values can represent an opportunity rather than a barrier. But accepting that the world is changing in unexpected and threatening ways is difficult enough to begin with, and if those forming a person's immediate social network reject the idea, that may dictate how climate change information is evaluated (Yang and Kahlor 2013). Of course, political and economic interests have also capitalized on the inevitable existence of uncertainty in scientific results by encouraging audiences to take the easy way out and deny the reality of anthropogenic climate change.

Here again, as for any complex issue, there are many shades and nuances of perspective, and it is useful to think about *audiences* rather than a single "mass" audience. Leiserowitz et al. (2013) have helped us to conceptualize how this works for climate change by organizing their analysis of national opinion survey results in terms of six different Americas – six different subsets of the population, or audiences, that have different orientations to climate change, as influenced by ideology, trust, demographics, and other factors. These range from the "alarmed" to the "dismissive." It is unlikely that the same message will reach them all.

In cases of public controversy over specific technologies with environmental implications, such as the genetic modification of food crops or the further development of nuclear power, it is clear that both proponents and opponents can be well informed about the scientific facts; rather, it is differences in values and differences in trust in the stakeholders and managers involved that are the more likely drivers of attitudes and opinions. Like the other examples above, while each of these controversies has distinct features, they help underscore the

point that forming opinions about environment-related issues is not always closely linked to knowledge of the underlying science. Risk estimations always involve uncertainty and usually involve social values, not just scientific facts; risk perceptions all the more so. Is a risk to an endangered species such as the spotted owl more important than the risk to an associated industry, in this case logging? The answer is a matter of value-laden judgment, not something that can be resolved exclusively by science. Even so, the claim that people's livelihoods are at stake resonates widely and can create heart-felt resistance to environmental regulation in some cases, of which the spotted owl controversy provides an enduring example (see Andre and Velasquez 1991).

Awareness that audiences or "publics" for news about the environment may respond in different ways might tempt communicators to adopt strategies that target these audience segments one by one, much as any modern marketer targets advertising, whether for products or politicians. However, this strategy can be counter-productive to the extent members of different audiences will inevitably be exposed to messages designed to influence someone else; the "bubbles" of our new media world are not always impermeable. For example, the message that the adoption of alternative energy sources such as solar, wind, and water will bring more jobs to an area could be persuasive with an audience of business people enthusiastic about development but have quite a different effect with an audience of environmental activists whose highest priority is the preservation of the local natural landscape and wildlife.

## *Critical science literacy and the interpretation of news*

Intelligently navigating today's media landscape, with its vast proliferation of voices and viewpoints and proportionately fewer authoritative anchor points to go by, will require new skills. We may all believe we know who is speaking from an informed perspective and who is not, but do we? Elsewhere (Priest 2013, 2014), I have introduced the idea of "critical science literacy" to refer to the skills that audience members today need to interpret and evaluate news and information about environment, science, technology, and health. This goes beyond knowledge of the facts – understanding the relationship between carbon and climate, knowing the importance of biodiversity, recognizing the shrinking availability of critical habitat, grasping how pollution affects the earth and the life that depends on it. It also means understanding science in relation to society. We know that scientific knowledge makes only a weak contribution to attitudes about science-related controversies, including environmental ones. Human values, including the valuation of the environment, play the crucial role.

People also need to know quite a bit about how science works. This means understanding the full range of methodologies used in science, not just experiments but observation, description, theory-building, and modeling. It means understanding that science always involves uncertainty, but at its best still provides us with the best available evidence. And it means understanding the nature of scientific expertise (Collins and Evans 2007) and something about how science works *socially*.

Science, including environmental science, is a social enterprise, and scientific claims are distilled through a highly social process, the result of which is what we commonly refer to as scientific consensus. Awareness of such crucial elements as peer review, the roles of scientific meetings and scientific societies, and the meaning of disciplinary expertise are all vital to understanding the nature of that consensus. "Weight-of-experts" arguments that rely on this kind of consensus in the face of uncertainty need to be more widely employed – and better understood (Dunwoody and Kohl 2017). All of these dimensions can be criticized – peer review lets through highly imperfect research, scientific societies may have too much influence

over which truths receive appropriate recognition, and the most stunning conceptual break-throughs often happen when disciplinary boundaries are breached rather than respected. But even in making such critiques, it is useful to start with some understanding of the sociology of science. Not all expertise is alike, for example.

Part of critical science literacy is recognizing that uncertainty is inevitable – while also understanding that this does not mean that scientific truth is entirely "up for grabs" or a matter of arbitrary opinion. Another part is understanding the role that human values play, if not in the actual conduct of science, in the choice of what problems are worth studying and what role science should play in the resolution of controversies that are rarely purely scientific in nature. Both of these dimensions are especially relevant to environmental choices that take place on the basis of science that inevitably carries a high degree of uncertainty. This sometimes results from the deep complexity of ecosystems but is also inherent in the nature of scientific inquiry. Our opinions and decisions about environmental issues inevitably involve value judgments, not just scientific ones.

Science exists *within society* and is not free of political and ideological influences, both those that take place within science and those that exist more broadly. Awareness of the political and ideological influences on science should not imply that science is simply a matter of belief, and yet a reality of the politics of science is that political elements cannot be ignored. A critical consumer of scientific claims should think to ask what ideological and political elements such claims incorporate. Whose political and economic interests does it serve? Climate change is again a key example; one recent study showed that climate change "counter-movement" organizations in the United States have a combined income of around $900 million, much of it from conservative foundations (Brulle 2013). But climate change is hardly the only place where funding determines the direction of research.

Sorting all of this out is asking a great deal of consumers of information – whether about science generally, or about science-based environmental claims in particular. Yet this standard is profoundly different from the old standard of science literacy that used multiple choice tests to measure knowledge of a chosen set of scientific facts. Facts matter. But the world of scientific and environmental knowledge is expanding so rapidly that a fact-based assessment of literacy is impractical when what is really needed are the skills to navigate an uncertain landscape of competing claims. The possession of critical science literacy – the ability to apply critical thinking skills to scientific claims – is also more vital than ever. It is especially important in today's new media world in which claimsmakers proliferate. We should celebrate the diversity of voices, but we must learn to make wise choices among them.

## The shifting influences of media and newswork

### *Integrating risk theory, media theory, and audience theory*

Social psychologists studying societal reactions to environmental and other types of risk have coined the term "social amplification of risk" to refer to the collective process through which entire societies react to risk-related information; this idea was presented in an early paper by Kasperson et al. (1988). This work is concerned both with the amplification or magnification of a risk, in which society may focus on and perhaps even exaggerate a particular risk, and with the attenuation or diminishing of a risk, in which society may downplay or ignore a particular risk, generally underestimating its importance. (Of course, whether public perception is magnifying an unimportant risk or downplaying a very important one is often itself a matter of opinion.) This approach, abbreviated SARF for "social amplification of risk framework," does not incorporate a fully developed explanation (that is, a true theory)

about how some risks come to be amplified while others are attenuated; it is now, therefore, more often described as a conceptual framework.

The media (meaning primarily the news media, although entertainment media also have influence) have been identified as one of many institutions that can serve to amplify or attenuate societal perceptions of risk, and it is consistent with our general understanding of media agenda setting that the media have the power to focus our attention on certain risks rather than others. SARF is also consistent with agenda-building theory that asserts that the media work in concert with other institutions in doing so. While the media should no longer be conceptualized as "mass," any more than today's audiences can be conceptualized as "masses," SARF remains a useful way of thinking about the impact of news work in the context of environmental controversies. For example, Bakir (2005) used this framework in a case study analysis of media's role in a battle between Greenpeace and Shell Oil over deep-sea disposal of an oil rig, a study that was explicitly designed to evaluate the SARF approach. While acknowledging and articulating the limitations of the framework (including its reliance on a static and linear view of communication), the author argues that SARF can accommodate attention to the roles of non-media actors, as well as more systematic analysis of how media institutions operate.

Journalists do not work in a vacuum; their choices of which stories to cover are usually responsive to what other actors do, particularly those actors who routinely act as media sources (such as politicians, corporate spokespeople, advocates and activists, and sometimes researchers). These actors contact journalists through press releases, press conferences, press kits, or simply by picking up the phone or sending a text, tweet, or email. Since the news media are highly influenced by these "information subsidies," we can identify the deliberate actions of concerned stakeholders on either side of a controversy as one strong explanation of which path is followed. A well-orchestrated public information campaign, whether by an environmental advocacy group or a corporation or industry defending itself against charges of environmental negligence, can certainly influence media accounts, both in terms of what stories are covered and how they are framed.

Whether these stories always or predictably influence public opinion in a particular way is a different matter, of course, one that depends on pre-existing values and attitudes, underlying cultural factors, trust, and perceptions of the credibility or legitimacy of particular points of view. But that is not to say that there are never effects, only that the effects are not uniform and may not always be entirely predictable, given their complexity.

This account is somewhat at odds with the ideology of journalism as "objective" reporting. In the United States, and to a large extent contemporary commercial journalism around the globe, "objectivity" is the norm. The term is in quotation marks because no account of a complex situation (whether in the media or elsewhere) can be truly "objective"; all of our knowledge, arguably even scientific knowledge, is produced by various forms of social consensus and is subject to revision. Yet media reports are often understood uncritically as reflecting truth and do disproportionately influence what is sometimes called the "social construction of reality" (Berger and Luckmann 1966; Tuchman 1978) – that is, how we as social beings come to understand the world from a collective point of view, including our understanding of which issues are important and which less so – and which risks matter.

An understanding of how information subsidies work should temper our blind faith in media objectivity. However, good journalists know how this works as well and conscientiously guard against being unduly influenced. Even so, we very often have no way to know about trends or problems that the media do not report, we tend to take seriously only those that we know about, and we often accept journalism's definition of the situation. It is almost inevitable that media definitions of reality creep into our thinking as "truth," in other words.

## *Media "objectivity" and environmental reporting*

According to Nelkin (1995), the whole idea of objectivity in journalism was originally borrowed from the idea of objectivity in science. Journalistic objectivity may also have economic roots in the desire to maximize audiences by offending no one, or at least as few as possible. However, in practice, objectivity in journalism generally means giving equitable attention to both sides of an issue (as though there were always only two). Derived from political reporting, in which many issues are reduced to a "left" and a "right" position, this is actually a much more simplistic proposition than it might appear, since most complex issues actually have more than two sides – even in politics. For environment, this creates a strong tendency for journalism to reduce issues into a pro-environment and a pro-industry position. This may be counter-productive to the extent it reinforces positions at either extreme, downplays possibilities for compromise, and even precludes finding and embracing solutions that are both good for the environment and good for (or at least acceptable to) industry. In other words, this practice likely increases polarization on environmental issues. Rather than being "objective," this approach may instead bias us against the search for workable "middle ground" solutions.

For science and environmental reporting in particular, there is also the important issue of what constitutes a legitimate opinion. Legitimacy on political or social issues may be defined somewhat differently, but for science and environment, legitimacy is normally linked to claims of specialized expertise. Claiming that the world is flat would not be treated seriously by today's science journalists, or so one hopes, since it doesn't meet the standard for empirical verifiability that has been established for science. However, things are rarely this clear-cut. Claiming that climate change is not happening has very often been treated as a legitimate scientific point of view, unfortunately – one deserving of "equal attention" in news stories (Boykoff 2011). Covering such claims as simple differences of perspective provides an easy solution for journalists who don't want to be put in the position of deciding what science is legitimate and what is not. This is understandable, but even so it can be a potentially confusing and even destructive practice. Indeed, while the study of news credibility has a long and venerable history, the conceptually related study of how the news media confer legitimacy (or illegitimacy) on a particular point of view has hardly begun. Yet, in the history of every social movement, the issue of legitimacy inevitably appears – and occasionally takes over the stage entirely. In science, this often becomes a struggle over the right to claim expertise.

In the case of climate change in particular, ideologically driven minorities have benefited by this obligation to report "both" sides of the issue. Journalistic stories about climate change were for many years characterized by the inclusion of "skeptical" perspectives by what was presented as equally qualified scientists. The mainstream scientific community has made progress in communicating to journalists that this kind of so-called "skepticism" is not a legitimate scientific view on climate. Even so, this is difficult territory to navigate. The best journalists covering environment and science realize that by the very nature of scientific inquiry, it may turn out that a minority view is correct. Journalists are rightly cautious about privileging only mainstream views. Commonly accepted scientific truth can, as Kuhn (1962) famously pointed out, always be overturned by new thinking.

The idea that truth is constantly subject to revision is an important foundation of science itself, including environmental science. For environment in particular, though, policy decisions must very often be made today on the basis of science that must remain uncertain until at least tomorrow. And on many issues – that the world is roughly round and that climate change exists, for example – a strong scientific consensus surrounds truth claims.

The lesson learned should not be that journalists should never question scientific authority, but that they need to exercise wisdom and responsibility rather than conferring this authority indiscriminately.

## New models and new strategies

Environmental journalism, like other forms of specialized journalism, faces profound challenges. Despite apparent and possibly permanent reductions in traditional media staffing – and even though democracy itself may be enhanced (not just destroyed) in today's new media world – information consumers will need a high level of sophistication to make sense of what they read, view, and hear regarding complex issues. The number of authoritative voices they can trust to guide them through this ever-more-complex maze seems to be shrinking, while the role of information subsidies is stronger than ever. Journalism tends to divide the world into opposed pairs of viewpoints, inviting polarization and discouraging consensus. Future news consumers may be increasingly tempted to seek out just the information that confirms their own views, potentially leading to further polarization despite the new opportunities for constructive debate that the Information Age affords. A better understanding of how science works, in the environmental or any other sphere, may help consumers to grasp, appreciate, and interpret alternative points of view wisely.

Environmental communication scholars and practitioners often see media framing as a key strategy for public opinion formation and attitude change. However, in a new media world in which the audience for media material is not only diverse but splintered, the idea of message framing represents a big challenge to both scholars and practitioners. It has always been true that the same message will resonate differently with different audience segments, one reason why generalizable framing effects have been hard to document. In today's "new media" world, this phenomenon of diverse audience responses can be exaggerated, in part because everyone has more choice about what messages to seek or heed. Some Internet messages "go viral," becoming immediately popular with some audiences – but unheard of to many others. Information subsidies may have increased, but in a decentralized media system, the impact of a particular message or message frame is far more difficult to predict or control. More research on why certain messages get taken up by key target audiences (the "going viral" phenomenon) is needed.

The current trend in science communication more generally – including environmental and health communication – is the turn toward "public engagement" as a communication strategy. Instead of conceptualizing audiences as passive, waiting to have their thinking "framed" by whatever messages we choose to send their way, the thinking is that it is more important (and arguably more ethical) to encourage dialogue, discussion, and debate about the issues that confront us. Does a community, a state, or a nation want to encourage nuclear power generation, or is it too risky? Is biotechnology a threat to the environment, a means to reduce world hunger, or both – or, perhaps, neither? What kind of industry and economy is most environmentally sustainable? Surely, in an ideal world, citizens would come together to discuss and decide such things. In practice, however, there are some problems with this approach. Only a small segment of the population has the time and interest to "engage" on any given issue that confronts us. And if they did, we have no system that would accommodate this activity on a large scale, and no particular mechanism (in large, politically pluralistic, multicultural societies like the United States, at least) for incorporating the outcomes of popular debate into policy decisions. The ongoing debates over US health care reform continue to demonstrate that popular discussion is not always ideally constructive.

Therefore, media representations of issues and actors in the environmental arena, among others, will continue to be vitally important. For all that individuals have access to ever-increasing amounts of information and opinion on the Internet, media agenda setting still matters. "Mainstream" media are the root source of many of the topics of discussion in the "blogosphere" (Tremayne 2007). Citizen journalism, greatly facilitated by the Internet, even so has neither the resources nor the credibility of traditional news organizations. As institutions, traditional media have been slow to change – but they are changing, even proliferating, and certainly not going away entirely. A key question for both scholars and practitioners to address in the future, then, is whether (and by what means) media can continue to become more interactive and engaging without losing all of their traditional authority, quality, or credibility. Whether our goal should be to disseminate a single truth or to provide readers with a guide to how they might understand many truths is an open question, but it is almost moot. There will always be many truths, increasingly so. Critical science literacy (as well as new media literacy) is more vital than ever in navigating among them.

# Further reading

Friedman, S. M., S. Dunwoody, and C. L. Rogers, eds. 1999. *Communicating Uncertainty: Media Coverage of New and Controversial Science*. Mahwah, NJ: Lawrence Erlbaum Associates.
This book, which grew out of discussions at the 1996 meeting of the American Association for the Advancement of Science, attempts to make sense out of scientific uncertainty as presented in media accounts, including a number of environmental examples.

McKenzie-Mohr, Doug, Nancy R. Lee, P. Wesley Schultz, and Philip Kotler. 2012. *Social Marketing to Protect the Environment: What Works*. Sage.
This book introduces community-based social marketing as applied to environmental issues, extending our thinking about media messages to encompass not just news but also marketing messages – including those delivered on posters, stickers, signs and other distinctive media. Strengths of the book include its use of many concrete cases (with graphical message illustrations) and its organization by issue type.

Pidgeon, Nick, Roger E. Kasperson, and Paul Slovic, eds. 2003. *The Social Amplification of Risk*. Cambridge University Press.
This collection brings the original SARF idea up to date through extensive scholarly analysis of media's role in communicating risk, consequences for public perception and the emergence of controversy, and effects on politics and policy. It is not limited to environmental risk but usefully combines environmental with other examples that together illustrate the more general theory.

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# 26

# PUBLIC PERCEPTIONS OF CLIMATE CHANGE AND THEIR VARIATION ACROSS AUDIENCES

*Lorraine Whitmarsh and Kaloyan Mitev*

## Introduction

This chapter provides a critical introduction to research on public perceptions of climate change and associated risks, and how these perceptions vary across audiences, particularly different age groups such as young people. The chapter focuses primarily on climate change, since this is where a considerable amount of environmental perception research has focused in recent years, although there are literatures on landscape and ecosystem change perceptions that are reviewed elsewhere (Upham et al., 2009). The chapter draws on quantitative and qualitative research within psychological and related domains from across several countries.

The next section reviews research on awareness and knowledge about climate change; after this, research on attitudes and concern about climate change is discussed. Building on this, the following section focuses on how different audiences, notably age groups, engage differently with climate change. Research into the effects on public perceptions of climate change communication is then briefly discussed. The final section concludes with implications of this research for communication efforts and future research.

## Perceptions of climate change: an overview

Initial research into public attitudes and responses to climate change was pioneered in the United States in the 1990s (e.g. Kempton, 1991), and today there remains a strong US concentration of expertise in this field. Yet, there also exists a growing literature on climate change perceptions within Europe, including the UK, as well as a small number of cross-national comparative studies (e.g. Bord et al., 1998; Dunlap, 1998; Brechin, 2003; Lorenzoni and Pidgeon, 2006; Capstick et al., 2015; McLoughlin et al., 2019). Much of the research to date has been descriptive (e.g. trends in concern, themes in discourse) and atheoretical although, increasingly, relevant theories are being drawn on to explain and predict responses to environmental change. As discussed later, for example, identity and persuasion theories can help explain environmental denial and identify the elements of a persuasive message. Literature relating to attitudes to particular climate change *impacts*, such as flooding and drought, has its roots in the hazard and risk perception studies of the 1960s (e.g. Kates, 1976) but has expanded to encompass new risks associated with climate change, such as sea-level

rise and ocean acidification (Mossler et al., 2017). Notably, though, certain risks (such as flooding) are more researched than others (such as climate-related diseases or climate anxiety; Watts et al., 2019). The following sections focus on the key findings from this sizeable literature.

## Knowledge of climate change

Surveys show that awareness and self-reported knowledge about climate change have been rising over the last three decades (Capstick et al., 2015). Since the early 2000s in the UK, for example, awareness of the terms 'climate change' or 'global warming' has been near universal (DEFRA, 2002, 2007; Whitmarsh, 2009), although in respect of more specific terms (e.g. carbon emissions, net zero), levels of awareness are lower (DEFRA, 2007; Whitmarsh et al., 2011; BEIS, 2019). Early perceptions research focussed on public understanding of the causes and impacts of climate change, and found that, when prompted, most people could identify the destruction of forests, carbon dioxide emissions, and emissions from transport and power stations as contributors to climate change (e.g. DEFRA, 2002; COI, 2008) but that unprompted understanding was lower (Brechin, 2003; Whitmarsh, 2009). Further, individuals often made erroneous causal associations between climate change and other distinct issues (notably, ozone depletion; e.g. Kempton, 1991; Bostrom et al., 1994; Eurobarometer, 2001). When asked, unprompted, what the effects of climate change would be, publics most commonly identified changes in weather, including increased temperatures and rainfall (Dunlap, 1998; DEFRA, 2002; Whitmarsh, 2009). Qualitative studies indicated a lack of distinction between weather and climate in lay understandings (Kempton, 1991; Bostrom et al., 1994), likely reflecting media coverage discussing climate change in the context of local weather-related stories, such as flooding (Hargreaves et al., 2003; Gavin et al., 2011). It is also likely due to the ways in which climate change, as a new concept, is made sense of in relation to familiar ideas and experiences (Ungar, 2000), a process known in the social psychological literature as 'anchoring' (Breakwell, 1991; Whitmarsh et al., 2011).

More recent studies of public understanding of climate change show that earlier erroneous associations of climate change and ozone depletion have strongly diminished (Capstick et al., 2015); but awareness of certain important impacts of climate change, such as ocean acidification, remains low (Capstick et al., 2016; Mossler et al., 2017). There also remains a tendency to underestimate one's own contribution to causing climate change and to identify causes of climate change with other people or countries (Lorenzoni and Pidgeon, 2006; Whitmarsh, 2009; Whitmarsh et al., 2011). In particular, the public underestimates the role of certain activities to causing climate change, notably meat eating/production and aviation (DEFRA, 2007; Attari et al., 2010). One cross-national study found, for example, that while most people acknowledged a human influence on climate, they also rated 'turning off the tap when brushing your teeth' as being much more impactful than 'avoiding eating meat' or 'avoiding buying new things' (McLoughlin et al., 2019). Similarly, other work shows recycling and reducing plastic carrier bag use are overestimated in their efficacy for mitigating climate change, while reducing travel and dietary change underestimated (Wynes et al., 2020; cf. Wynes and Nicholas, 2017). This may be due to the 'availability heuristic', that is, recycling is simply a much more familiar 'green' action to people; although other evidence indicates that undertaking less effortful behaviours (e.g., recycling, turning off taps) serves to psychologically justify maintaining high-carbon behaviours that are more effortful to change (e.g., eating meat, not flying; Köhler et al., 2020).

Although most members of the public accept that climate change is, in part, a product of human activities, there remains a small minority in many countries who are sceptical that the issue is anthropogenic (e.g. Whitmarsh, 2011; Poortinga et al., 2011; Smith and Leiserowitz, 2012; McLoughlin et al., 2019). Scepticism may initially have been in part due to media presentation of climate change as controversial and uncertain (e.g. Boykoff and Boykoff, 2004), and because the human causes of climate change are not self-evident. Yet, the issue has also gradually become more politicised with mitigation policies more often opposed by right-of-centre parties; consequently, the US saw a growing divide between Republican and Democrat voters in climate change belief and concern (McCright and Dunlap, 2011), and research elsewhere similarly showing conservative political values are strongly associated with scepticism (e.g. Eurobarometer, 2009; Whitmarsh, 2011). As discussed later, this highlights the tendency to interpret information about climate change in relation to one's existing views of the world.

Many have argued that the public will need to have a reasonable understanding of climate change and their role in causing and responding to it, particularly if certain policies (carbon tax, carbon labels, etc.) are realised or expanded (Wynes et al., 2020. Yet, how we define 'carbon literacy' is important: we should not assume the public is carbon illiterate simply because they do not know particular 'facts' or use technical language; more important is the contextual understanding and application of knowledge, which cannot readily be elicited through survey research (Whitmarsh et al., 2011). In one sense, the evidence here is not encouraging: despite growing awareness and understanding of climate change, there remains low salience of the issue in individuals' day-to-day choices (Upham et al., 2009; Whitmarsh, 2011), which are more commonly motivated by considerations of cost, convenience, and social convention (Upham et al., 2009; Whitmarsh, 2009b). On the other hand, deliberative approaches to eliciting public views on climate action show that the public *do* back ambitious mitigation policies when informed about their costs and benefits (Citizens Convention on Climate, 2020; Climate Assembly UK, 2020). Furthermore, as we now discuss, concern about climate change has grown as has support for ambitious climate policy action, which is promising for finally closing the 'knowledge–action' gap (Kollmuss and Agyeman, 2002).

## Attitudes to climate change

Beyond awareness and knowledge, research has also explored how the public evaluates climate change (i.e. their attitudes), including levels of perceived risk and concern. Attitudes are dynamic, influenced by a range of factors, often ambivalent or uncertain, and frequently not predictive of behaviour (e.g. Haddock and Maio, 2012). Yet, they hold important functions for individuals, such as helping to organize knowledge, inform decisions, express identity, and seek connections with others. Furthermore, the concept of attitudes is helpful in understanding how individuals interpret and respond differently to the same information, since pre-existing attitudes have been shown to bias perceptions and guide behaviour: people are more attentive to, and accepting of, attitude-consistent information and tend to ignore or reject dissonant information (e.g. Lord et al., 1979). As we discuss later, this characteristic of attitudes highlights the heterogeneity of the public and helps explain the diverse effects of communication on environmental change issues.

In respect of climate change attitudes, most people have a negative affective (i.e. emotional) response to climate change (Lorenzoni and Pidgeon, 2006). Furthermore, concern about climate change has tended to grow over the past three decades (e.g. Upham et al., 2009), albeit there have been fluctuations as other issues have gained more public attention at

different times (e.g., financial crash, terrorism; Capstick et al., 2015). Earlier research tended to show that climate change featured lower in public concerns than health, security, and social issues (Bord et al., 2000; DEFRA, 2002; Poortinga and Pidgeon, 2003) and was seen as a spatially and temporally remote risk, affecting future generations and other countries (Bord et al., 2000; Gifford et al., 2009; Whitmarsh et al., 2011). For example, O'Neill and Nicholson-Cole (2009) asked UK participants to rate the severity of climate change risks for themselves, others in their community, and others in their country, and found ratings increased significantly with distance; although other work found it was seen as more proximal for some groups, particularly those in developing countries (e.g. Frank et al., 2011).

This psychological distance that has characterised public perceptions of climate change (at least in developed countries) stems from the characteristics of the issue (global, uncertain, complex, embedded in natural processes, linked to energy consumption) and their interaction with psychological and social factors (identity threat, cognitive dissonance, consumption norms, media communication; Lorenzoni et al., 2007; Gifford, 2011). First, risks tend to be more concerning when they are unfamiliar and seen as 'unnatural' (such as nuclear or genetic technologies; e.g. Slovic et al., 1980); the conceptual association of climate change with familiar, natural weather patterns thus contributes to it being underestimated as a risk (Ungar, 2000). Second, risks are more salient when we learn about them through direct experience (Slovic et al., 1978; Fazio and Zanna, 1981); yet, climate change is a global and long-term phenomenon primarily detected through scientific data and computer models and learnt about indirectly through media communication (Weber, 2010). Those who experience climate change impacts more directly (e.g. via floods, drought) tend to interpret these experiences in light of their existing beliefs, such that those already concerned about the issue may become more concerned, but climate sceptics may view such as events as naturally caused and thus not change their climate change attitudes (Clayton et al., 2015). Third, risks are assessed in terms of the balance of costs and benefits associated with a hazardous activity (e.g. Slovic, 2000), so many may view the possible risks from climate change as being outweighed by the benefits associated with energy use (Lorenzoni and Pidgeon, 2006). Related to this, acknowledging the damage caused by one's personal energy consumption can result in cognitive dissonance (an uncomfortable psychological state experienced when aware of inconsistency in one's attitudes and behaviour; Festinger, 1957). This can be relieved by various justification and compensatory strategies, such as pointing to others' inaction (van der Pligt, 1985) or overestimating one's own efforts to reduce emissions (Kaklamanou et al., 2015; Köhler et al., 2020). Since belief in climate change has become politicised, for some groups climate scepticism is part of their cultural identity (e.g., as a Republication) and so acknowledging climate change risks or mitigation policies would imply identity threat (Kahan et al., 2011). More generally, climate scepticism can be a denial response to information threatening to lifestyle. One study showed that, when provided with information about climate change that called for significant personal sacrifices (e.g. avoiding flying), participants were less convinced by the argument, compared to when they were asked to make only a small sacrifice (e.g. changing to low-energy light bulbs; Corner and Hahn, 2009).

Public concern and risk perceptions in respect of climate change have, however, significantly risen since early 2019, following the publication and media coverage of the Intergovernmental Panel on Climate Change's 1.5 degree report (IPCC, 2018), the declaration by many governments and organisations of a 'climate emergency' (Climate Emergency, 2020), high-profile public protests and 'school strikes' around the world (Thackeray et al, 2020), and prominent media coverage of climate-related events (e.g., Australian bushfires; Evensen et al., 2020). Public surveys showed unprecedented concern about climate change during

2019, which grew still further in 2020 despite competing concerns over COVID-19 (BEIS, 2019; Evensen et al., 2020; Ipsos MORI, 2020; Leiserowitz et al., 2020; Whitmarsh et al., 2020). In fact, one survey in June 2020 found that climate change remained the most pressing global concern to people in six of seven European nations, more so than 'epidemics and diseases' (Vattenfall, 2020). UK surveys in 2020 similarly found higher support than previously for ambitious climate action (curbing meat consumption and flying; Whitmarsh et al., 2020) and majority support for the national declaration of a climate emergency (Steentjes et al., 2020). Together these findings suggest that, in contrast to previous studies which suggested the fragility of climate change concerns in the face of competing concerns (so-called 'finite pool of worry'; Weber, 2010), climate change concern may now be a more stable construct (Evensen et al., 2020) aligned with long-held societal values of environmental protection (e.g. Bulkeley, 2000; Lorenzoni et al., 2007; Fisher et al., 2012). Nevertheless, there likely remains a need to normalise discussions about climate change in everyday life in order to embed climate change considerations in people's choices (Corner and Clarke, 2016; Geiger and Swim, 2016).

## Audience variation in climate change perceptions: growing engagement amongst young people?

Research shows that the public is heterogeneous in their attitudes to climate change – both within and between nations. Internationally, there may be more climate scepticism and lower concern observed in Anglophone countries and (former) communist European nations (Capstick et al., 2015; Poortinga et al., 2018; McLoughlin et al., 2019). Within nations, belief in and concern about climate change varies according to a range of factors, such as gender, age, and ethnicity (e.g. Upham et al., 2009), although studies show values tend to be stronger predictors than demographic, knowledge, or other factors. In the UK, Whitmarsh (2011) investigated whether climate scepticism is at heart a matter of ignorance (knowledge deficit) or divergent values and found very clear evidence of the latter. Indeed, survey respondents' scores on a measure of scepticism did not significantly differ according to their self-reported knowledge about the issue or their qualifications (including scientific qualifications); whereas the strongest predictors were political affiliation and environmental values. This is consistent with other studies that show that sceptics score highly on tests of general scientific literacy (Kahan et al., 2012) and that those with right-of-centre political beliefs and individualistic worldviews are more sceptical, at least within the UK and US (Dunlap and McCright, 2008; Eurobarometer, 2009; Poortinga et al., 2011). Indeed, a meta-analysis of factors influencing public attitudes to climate change found ideology was a stronger influence than experience of extreme weather events, knowledge, or other factors (Hornsey et al., 2016).

Attitudes toward climate change also differ between age groups (Milfont et al., 2015). Young people have been found to hold more environmentally friendly positions (Van Liere and Dunlap, 1978) and age has been positively associated with pro-environmental attitudes and behaviours (Mayer and Franz, 2004). Nevertheless, young people represent an understudied population in the realm of attitudes toward climate change (Stevenson et al., 2019). Yet, the so-called Millennials and Generation-Z will be the ones affected by climate change more than any other generation before (Ojala, 2012). They are also the most vulnerable to the decisions which are made by older generations (Wray-Lake et al., 2010), and as future decision-makers of the world, it will be their responsibility to deal with the consequences of climate change (Ojala and Lakew, 2017). Furthermore, adolescence represents a very important developmental stage; identity formation occurs during this time (Erikson, 1968),

characterised by self-focus, instability, feeling-in-between, possibilities, and self-explorations (Arnett, 2015). As people become more mature in their identity and more liberal in their political orientation during late adolescence, they tend to show higher levels of environmental activism (Matsuba et al., 2017). Studies have shown that the more generativity, care, and concern for the next generation expressed at age 19, the more likely it is for people to get involved in environmental actions later in life (Alisat et al., 2014).

Research shows that young people in Europe usually have higher levels of concern about climate change compared to older age groups (Eurobarometer, 2019). The same is true for young people in the US, where they show strong beliefs that climate change is happening and is largely caused by human activity, however, they do have misconceptions about the consequences of climate change (Wachholz et al., 2014). In 2014, young people in the UK thought that climate change was the third most pressing issue together with armed conflict but behind poverty and terrorism (Dahlgreen, 2014). However, in 2020 climate change has been ranked second by the same population, only behind health (presumably due to the on-going worldwide pandemic) (YouGov, 2020a). The data for the UK also shows that 46% of people aged 18–24 are very concerned about climate change compared to only 24% of those in the 65+ age group (YouGov, 2020a). Additionally, 54% of younger people also seem to think that they understand climate change very well, while only 27% of older people (65+) and 29% of those aged 25–49 have the same opinion. The impact of the global pandemic on the levels of concern has also been higher for younger people as 19%, compared to 12% of older people, state they have become more concerned about climate change in the last year due to the coronavirus (YouGov, 2020a). Using data from the European Social Survey, Poortinga et al. (2019) concluded that the likelihood for people to express doubts about the anthropogenic nature of climate change was higher for older participants. Moreover, the same respondents were also more likely to exhibit lower levels of concern, have higher levels of scepticism, and perceive less negative impacts about climate change (Poortinga et al., 2019).

However, when it comes to engaging with behaviours to tackle climate change such as recycling, using energy-efficient appliances, and using own bags when shopping, 18–24s are the ones who do these the least frequently (YouGov, 2020b). This is consistent with similar results across the EU, where older people said they were more likely to undertake actions to tackle climate change (Eurobarometer, 2017). It is worth noting, though, that these are generally low-impact pro-environmental behaviours and that older people might have different motivations behind these actions, such as saving money. Other research has nevertheless shown that while the generational gap in the levels of concern might be big, younger people do not seem to lead more sustainable lifestyles compared to the elderly (Bell et al., 2016).

The differences in age could be attributed to the fact that older generations might be more affected by any changes needed to cope with climate change since they have already been integrated into existing social orders (Poortinga et al., 2019). Further, young people learn about climate change at school/university where the information usually comes from reliable sources reviewed by experts, thus it is not politically charged (Stevenson et al., 2014). This is very important since, as noted above, one's values and political ideology (left vs right; democrat vs conservative) shape people's views on climate change (Corner et al., 2014). As stated, people in their adolescence are still in the process of forming their identity; and research has shown that worldviews seem to have less influence among adolescents, thus education on the topic of climate change might be more effective (Wibeck, 2014). Thus, this opens a window of opportunity for climate change communication to have higher levels of receptivity amongst young people who are still trying to define themselves on the political spectrum.

Other factors such as the rise in popularity of the Internet, and more particularly of social media, during the last decade have also had a huge influence on shaping young people's attitudes and behaviours toward climate change. For example, 3.6 billion people used social media in 2020, and this number is projected to increase to 4.4 billion by 2025 (Clement, 2020). Those in the 18–24 age group list television (23%) and social media (17%) as their first two sources for climate change information, additionally, for young people social media is a more easily accessed source of news compared to print and broadcast media (Nielsen and Sambrook, 2016). Social media provides an informal learning space that allows for a direct interaction with peers, who are thought to be very influential in shaping one's climate change perceptions (Stevenson et al., 2019). For instance, when Swedish activist, Greta Thunberg, began her 'Skolstrejk för klimatet' ('School strike for climate') in August 2018, she caught the attention of young people via social media, and her protest quickly spread around the world (Boulianne et al., 2020). Organised events such as #FridaysForFuture culminated on 15 March 2019 when an estimated 1.6 million students from 120 countries around the world took to the streets requesting immediate action on climate change from governments and world leaders (Haynes, 2019). This marked a huge shift in young people's engagement with climate activism as they previously played only a limited role in similar events (Fisher, 2019). One possible explanation for this snowballing effect of organised protests is that young people are very prone to peer influences especially regarding activism and civic participation (Yates and Youniss, 1999). Furthermore, young people appear to have more optimistic or less fatalistic views about reducing climate change (Corner et al., 2015). Polls in Europe have shown that the majority in this age group consider climate change to be solvable, and to believe that personal actions might influence climate change – more than older age groups (Schneekloth and Albert, 2010; Eurobarometer, 2019). Similarly, in the US, half of the people aged 18–34 – about 10% more than those in older age groups – state that global warming can be reduced by humans (Feldman et al., 2012).

Overall, young people seem to be more concerned and less sceptical about climate change. They are also the ones who have more optimistic views about how to combat the issue. During the last two years, they have taken a significant stand by being the most active age group when it comes to environmental activism and requesting governments to take real actions to battle climate change. Possible factors contributing to this are the influence of peers, the abundance of information, the lesser influence or lack thereof of political affiliation, and the exponential rise of social media during the last decade which has facilitated conversations on the issue. However, research points to few differences in the sustainable behaviours that younger and older generations are adopting. Given that young people are such an understudied population in the realm of pro-environmental behaviours, future research should focus on exploring this age group in more detail as they will be the ones shaping the way we move forward.

## Communicating climate change: lessons from audience research

The way in which climate change is communicated fundamentally shapes public perceptions of and responses to the issue. Information source, content, media, audience, and context interact to produce communication outcomes (e.g. Petty and Cacioppo, 1986). Language is key to both 'constructing' issues as well as shaping how messages are received. Language can 'make new and different things possible and important' (Rorty, 1989, p. 39); and in the environmental context, can construe environmentally-destructive actions as acceptable or even desirable (e.g., eating meat, flying); or conversely, convey moral, scientific, economic, or other

rationales for environmental protection (Hulme, 2009; Stibbe, 2015). Even the choice of specific terminology can significantly change audience perceptions and response (Villar and Krosnick, 2010). U.S. Republican advisor Frank Luntz (2002), for example, famously advocated use of the term 'climate change' instead of 'global warming' because the former was deemed less frightening and emotive; and indeed, evidence suggests 'global warming' does evoke more concern than 'climate change' amongst the public (Whitmarsh, 2009), at least amongst those predisposed to accept the issue is real (Akerlof and Maibach, 2011). More recent US research, though, suggests these linguistic differences may no longer hold: 'carbon pollution', 'climate' change', and 'global warming' elicited equal mitigation policy support (Mossler et al., 2017).

As well as words, images are also extremely important. Chapman et al. (2016) conducted a study in the UK, US, and Germany and concluded that authentic and thought-provoking images, telling a new story, showing the localised climate impact, but also including specific behavioural action which people could undertake, proved to be a powerful source of communication. This finding is specifically important in the current era of social media which has emerged as a new form of communication during the last decade via websites such as Facebook, Twitter, and Instagram. For instance, one of the biggest advantages of social media is the wide use of visuals, e.g. images or videos (Anderson and Caumont, 2014), thus climate communicators could and should take advantage of these means.

A continued focus within the climate change communication literature is on the emotional content of messaging. Emotions are a strong influence on climate change perceptions and responses (Chapman et al., 2017; Wang et al., 2018), consistent with broader risk psychology literature (Böhm and Pfister, 2000; Keller et al., 2012). For example, one US study found emotions (particularly worry, interest, and hope) explained a sizeable 50% of the variance in climate change policy support amongst the public, with worry exerting the strongest influence (Smith and Leiserowitz, 2014). However, while worry might engender policy support, the stronger emotion of fear can raise anxiety to the extent of 'paralysing' audiences (O'Neill and Nicholson-Cole, 2009; Feinberg and Willer, 2011). The broader literature on risk communication shows that using fear or alarmism to communicate risks can backfire and lead to audiences denying or ignoring the risk as an emotion-focussed coping response (Lazarus and Folkman, 1984). Fear-based messaging can work, however, under certain circumstances; specifically, if paired with a message about how to effectively avoid or reduce the risk – i.e., by raising self-efficacy (Witte and Allen, 2000; Tannenbaum et al., 2015). Conversely, increasing evidence suggests using more positive messaging, that engenders emotions such as hope, or which emphasises benefits of action (as opposed to costs or losses), may be more effective than negative or fear-based messages (Spence and Pidgeon, 2010; Myers et al., 2012); although it may also serve to limit action by reducing risk perceptions (Hornsey and Fielding, 2016).

Furthermore, using more emotive language may be polarising: while some research suggests the term 'global warming' appeals more to those already concerned, and with left-leaning politics, than 'climate change', the reverse is true for climate sceptics or deniers (Akerlof and Maibach, 2011). This is consistent with evidence that there is considerable variation in how different audiences respond to alternatively-framed climate change messages. Prior attitudes, political worldview, and environmental values appear to be particularly strong influences, not only on climate change concern and policy support amongst the public, but also on how climate change messages are responded to (Whitmarsh, 2011; Hornsey and Fielding, 2016). Corner et al. (2012), for example, found that climate sceptics reported becoming less convinced about climate change, while those already concerned about climate change became more convinced, when reading the same two editorials (providing

contrasting perspectives) about the issue. Similarly, Howell and colleagues (2016) found mitigation framings to be more engaging for those with high levels of concern, whereas adaptation framings were more engaging for low-concern individuals. Segmenting audiences by their politics shows that left-leaning prefer 'justice' narratives of climate change, while right-leaning prefer 'avoiding wastefulness' or 'patriotism' framed messages (Whitmarsh and Corner, 2017). Thus, as Clayton et al. (2015) conclude, since information is filtered through various (often ideological) biases, 'Much diversity in [public] understanding can be attributed not to what we learn about climate change but to how, and from whom, we learn: the sources of our information and how we evaluate those sources'.

Trusted messengers are therefore also an important component of audience responses to climate change (Druckman, 2001). Indeed, recent research suggests information source is more important than the language used within messaging in shaping audience responses (Whitmarsh et al., submitted). If the information source is seen as credible and trustworthy, audiences are more likely to respond favourably to their message (Renn and Levine, 1991). Trust comprises both competence and expertise, but also integrity and value similarity (Earle, 2010). Thus, scientists are generally seen as trusted climate change communicators (Nisbet and Myers, 2007; Leiserowitz et al., 2012); but communicators who share their audience's values are also more likely to be trusted: U.S. Democrat voters tend to trust Democrat messengers more than Republicans, for example (Kahan et al., 2011). However, research also shows that messengers whose values are not congruent with their message may be unexpectedly effective messenger: Bolsen et al. (2019) found that Republican Party leaders enhanced the effectiveness of climate change messages not only amongst Republican voters, but also more widely, 'perhaps due to the surprising effect that unconventional or unexpected sources of information can have in terms of its persuasive impact' (p. 485) and because it provides a more socially 'costly' signal and reduces identity threat (Benegal and Scruggs, 2018).

A chief aspect of social media is providing everyone with a platform to voice their opinions, thus diminishing the power of political parties and large media companies (Pearce et al., 2019). Social media has had a positive effect on climate communication as it has facilitated environmental activism, e.g. the organisation of the #FridaysForFuture protests. Research has also shown that conversation on social media surrounding big climate events, such as the Conference of Parties (COP15), dwindles after an event, but it does not halt, thus to some extent the topic stays part of the public domain (Segerberg and Bennett, 2011). This is important because climate campaigns have usually been able to attract a large amount of public attention during a specific 'moment', however, maintaining that same attention has proven very difficult over time (Corner and Clarke, 2016). Thus, social media presents its users with the opportunity to set climate change as a topic of discussion at any given point in time, and not only during pivotal moments.

Online social networks have indeed provided a vast platform for people to voice their opinion, share facts, and raise awareness, nevertheless, they have also been widely used for the spread of conspiracy theories and fake news in the realm of climate change. There have been coordinated campaigns spreading messages misinforming the public and casting doubt over the existence of climate change and further calling for inaction on the issue (Farrell et al., 2019). Yet, recent research (e.g. Drummond et al., 2020; Hong, 2020) shows that exposure to fake news about climate change might not be as strong a driver of climate scepticism as one's affiliation with a political party (Republicans/conservatives vs Democrats/liberals). This creates a further, and probably more complicated, issue connected with the algorithms used by social media websites. These algorithms rely on one's preferences for the content they like to see and interact with, thus people might be predominantly exposed to

information from other users who share the same ideas, beliefs, and values (Anderson, 2017). Consequently, users remain in their own bubble of opinions without getting exposed to a different point of view, this could be especially detrimental to raising awareness and communicating information on climate-related topics.

## Conclusion

Although information provision does not necessarily lead to attitude change (Corner et al., 2012; Rhodes et al., 2014), and by itself often has very limited effects on behaviour change (Jepson et al., 2010), the provision of information and how it is conveyed can be important for shaping public support for policies (Clayton et al., 2015). Public views on climate change are important because they provide a democratic basis on which policy-makers can act to address the issue and also provide insight into which policies will be socially acceptable and effective (Dietz and Stern, 2008). High levels of public concern and support for action provide a political mandate to take ambitious action (Howarth et al., 2020). Conversely, ignoring public attitudes and values risks implementing unworkable policies, or engendering protests, as evidenced by high-profile protests such as the *gilets jaunes*.

This chapter has highlighted the key themes and complexities in public perceptions and designing effective communications on climate change. The findings show widespread public awareness of climate change, though some knowledge gaps, and a strong ideological influence on attitudes. There is also growing engagement with climate change amongst young people, and this audience group may be particularly receptive to climate change messages. Recent studies show concern about climate change has risen significantly since early 2019, despite competing worries including COVID-19. Information source, content, media, audience, and context interact to produce communication outcomes, with prior attitudes providing a strong filter for information processing. Experimental evidence shows that positive messaging, inclusive language, and local imagery, targeted to receptive or ambivalent audiences, and using like-minded or impartial sources are among the ways to effectively produce engaging climate change communications. Further research should focus on understanding the efficacy of interventions designed to intentionally shape public attitudes, and on more participatory approaches to involving the public in policy-making to help improve decision quality as well as building collective efficacy and normalising climate change action.

## Further reading

Two review articles on climate change perceptions and responses:

Capstick, S., Whitmarsh, L., Poortinga, W., and Pidgeon, N., 2015. International trends in public understanding of climate change over the past quarter century. *WIREs Climate Change 6,* 35–61

Clayton, S., Devine-Wright, P., Stern, P., et al. (2015). Psychological research and global climate change. *Nature Climate Change 5,* 640–646

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# 27

# ENGAGING DIVERSE AUDIENCES WITH CLIMATE CHANGE

## Message strategies for Global Warming's Six Americas

*Connie Roser-Renouf, Justin Rolfe-Redding, Neil Stenhouse, Anthony Leiserowitz and Edward Maibach*

### Introduction

Global climate change is a threat of the gravest magnitude to human societies and natural ecosystems – a threat recognized by virtually the entire climate science community. Among Americans, however, it remains a divisive issue, viewed from multiple perspectives: Some dismiss it as a hoax, some are uninterested and know little about it, and others are worried and motivated to address the threat.

To build public understanding and engagement with the issue, climate communicators must recognize and respond to these varied points-of-view: Messages are unlikely to be effective if a diverse population is treated as a homogeneous mass, ignoring the diversity of opinion, the cultural and political underpinnings of these opinions, and the informational needs and interests of sub-groups within the population.

In this chapter, we discuss climate communication strategies in light of the information-processing propensities of *Global Warming's Six Americas* – six unique audience segments that perceive and respond to the issue in distinct ways. The Six Americas range across a spectrum of concern and issue engagement, with segments that accept and reject the threat of climate change at the ends of a continuum, and those that are less certain and less engaged in the middle (Figure 27.1). At one end of the spectrum are the *Alarmed*, who are very concerned about the issue and support aggressive action to reduce it; at the other end are the *Dismissive*, who do not believe it is a problem, and are likely to see it is a hoax. Between these two extremes are four groups – the *Concerned, Cautious, Disengaged and Doubtful* – with lower certainty and issue engagement.

The segments are strongly associated with a range of characteristics, including climate and energy policy preferences; political ideology and party identification, cultural values; political efficacy, and consumer and political behavior (see Maibach et al., 2009, 2011; Leiserowitz et al., 2012, 2013; Roser-Renouf et al., 2015, 2016b). A variety of climate communicators – government agencies, non-governmental organizations, companies, media organizations, science museums, zoos, and aquaria – have used this information to select target audiences, and tailor communication and educational content.
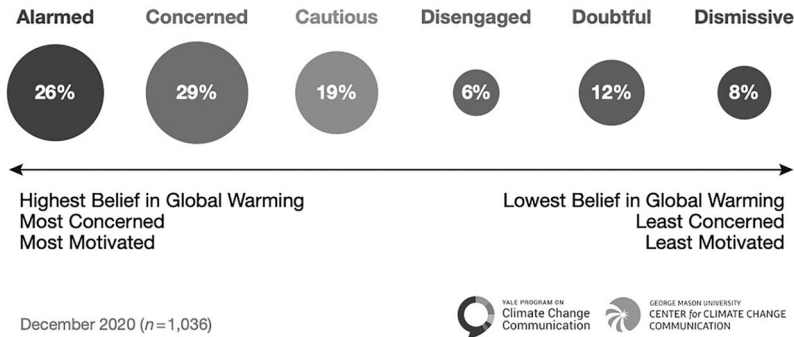
*Figure 27.1*   Global Warming's Six Americas
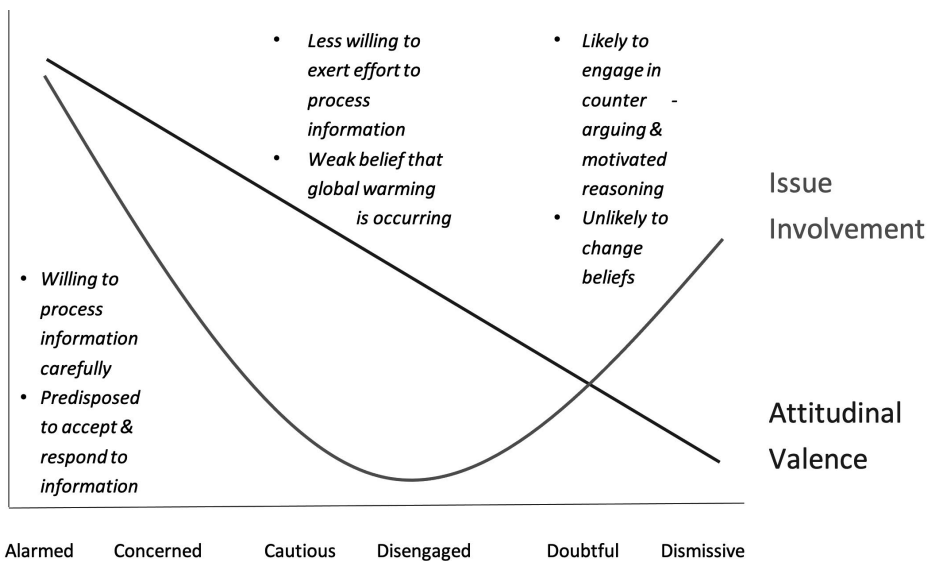


*Figure 27.2*   Information–Processing Propensities Among the Six Americas

Publications describing the segments have been largely descriptive, detailing the beliefs, behaviors, and characteristics of each group. The framework is not merely descriptive, however: Two theoretical dimensions that underlie the Six Americas – *attitudinal valence* and *issue involvement* (Figure 27.2) – link the segmentation to well-developed literatures on persuasion, information–processing, science and risk communications, and opinion leadership, suggesting a wealth of communication strategies for reaching and engaging the Six Americas.

Attitudinal valence is defined here as *the inclination to accept or reject the science of climate change*, and is assessed by several key beliefs: Human-caused climate change is happening, harmful and solvable; and scientists agree on its reality and human causation. These beliefs have been shown to predict support for national action on the issue and for mitigation policies, as well as political and consumer activism (Ding et al., 2011; Roser-Renouf et al., 2014, 2016a; van der Linden et al., 2015, 2019).

Issue involvement refers to *cognitive and affective issue engagement* and is assessed in terms of the amount of thought devoted to the issue and attitudinal certainty. Both the *Alarmed* and
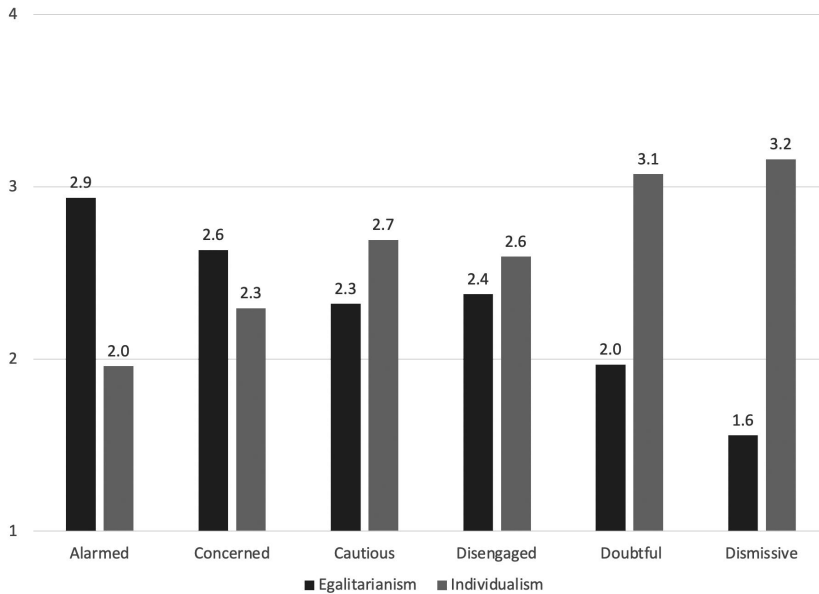
*Figure 27.3* Cultural Values of the Six Americas. The Six Americas differ in the weight they ascribe to egalitarian values – i.e., equal opportunity, a more equal distribution of wealth, and governmental protections for vulnerable minorities and the poor – as opposed individualistic values – i.e., freedom from government intervention in the lives of individuals and in business. Source: Yale/George Mason; June 2017; unweighted n=1,248

*Dismissive* think about the issue and are certain of their opinions, but the *Alarmed* understand and accept the key facts about climate change, and are predisposed to accept messages that are consistent with the science, while the *Dismissive* reject these facts and are predisposed to reject and counterargue these same messages.

The remaining segments – the *Concerned*, *Cautious*, *Disengaged* and *Doubtful* – currently comprise about two-thirds of the U.S. population. They have lower issue involvement and greater uncertainty regarding the reality, dangers, and causes of climate change; they differ from each other in their levels of uncertainty, predispositions to accept or reject climate science, cultural values (Figure 27.3), media use, attention paid to information about global warming (Figure 27.4), and demographics. These differences have implications for the information the groups are interested in learning (Figure 27.5), the communication channels most likely to reach them, and the communication strategies that are most likely to engage them.

## Involved publics with positive climate change attitudes

### *The alarmed*

*Key Beliefs & Issue Involvement:* Most *Alarmed* hold all five key beliefs: They are certain global warming is happening, understand that global warming is human-caused and that most scientists think that global warming is happening; they believe that they, their families, and future generations are at risk. They are highly involved with the issue: nine out of ten are very worried, and two-thirds report having thought "a lot" about global warming, three
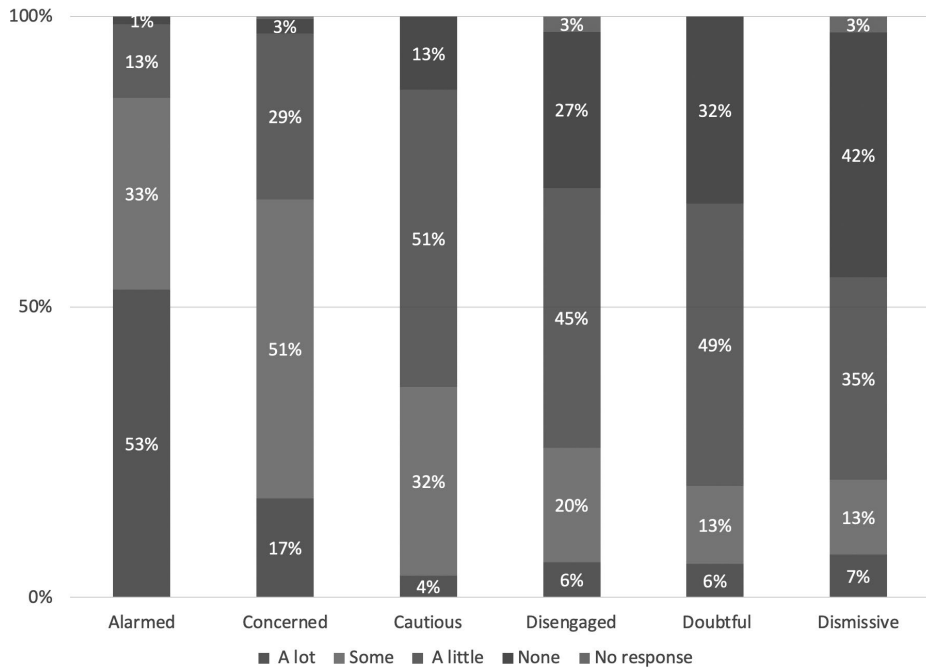
*Figure 27.4*    Attention Paid to Global Warming Information

*Source*: Yale–George Mason, Apr. 2012, unweighted n=1,008
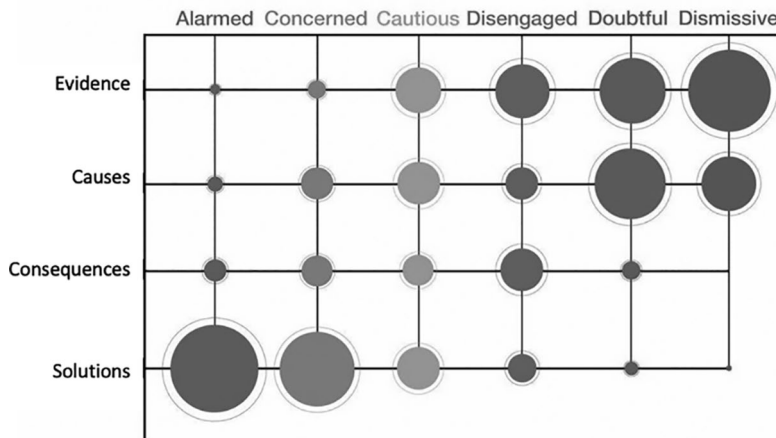


*Figure 27.5*    Nature of the One Question Respondents Would Most Like to Pose to a Climate Scientist. The Six Americas are interested in learning different types of information about global warming, with the skeptical segments most interested in information about the evidence for and causes of global warming, the concerned segments interested in information about action to mitigate climate change, and the uninvolved segments varying widely in their questions.

*Source*: Yale/George Mason University, May 2011; unweighted n=1,010

*Figure credit*: Ian Barin.

**BELIEFS**

| | |
|---|---|
| Certain GW is happening | 93% |
| Hi perceived risk to self | 83% |
| Hi perceived risk to family | 85% |
| Hi perceived risk future generations | 98% |
| US is being harmed now | 84% |
| Human-caused | 91% |
| Scientists agree | 90% |
| Individual actions won't make a difference... | 27% |

**INVOLVEMENT**

| | |
|---|---|
| Very worried | 89% |
| Personally important | 53% |
| Thought" a lot" about GW | 67% |
| Could easily change  mind about GW | 13% |
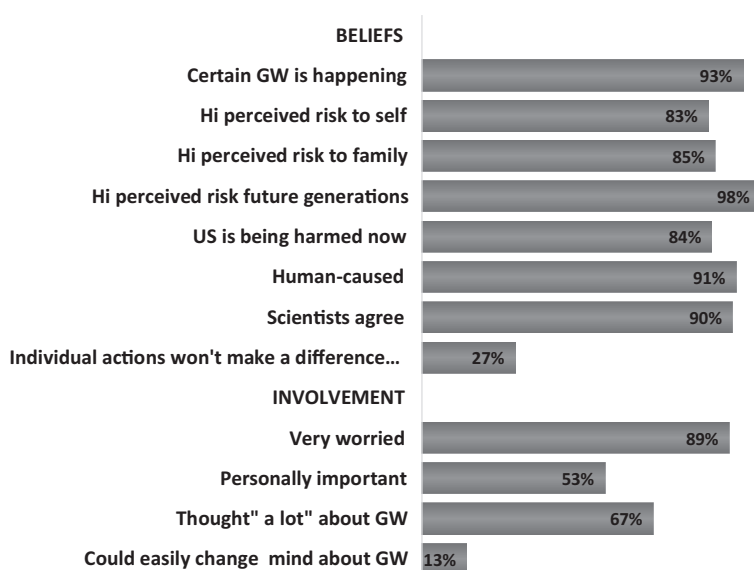
*Figure 27.6*    The Alarmed

*Note*: See Appendix for item descriptions; Source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

times as many as any other segment. For the *Alarmed*, global warming is a real and urgent threat (Figure 27.6).

**Characteristics:** The *Alarmed* have a higher proportion of liberals and Democrats than any other segment. Just over half identify as liberal, compared to about 30% of the *Concerned* and a quarter of all Americans; close to two-thirds are Democrats. The *Alarmed* are the most egalitarianism segment, and the least individualistic. They are not all liberal Democrats, however: a plurality say they are middle-of-the-road moderates, and one in ten are Republican or lean toward the Republican Party.

The *Alarmed* are more educated than the national average – close to half have a bachelor's degree or higher, compared to the third nationally. They tend to be younger, female, and people of color. A third are Millennials and a quarter are Hispanic.

**Informational Needs and Media Use**: Since the *Alarmed* are already convinced of the reality, danger, and human-caused nature of climate change, they are the most likely to report an interest in learning about the individual and national actions that would reduce the threat. They are very attentive to global warming news – close to three-quarters follow environmental news, compared to 37% nationally. They are more likely to follow news about politics, science, and technology than any other segment.

## *The concerned*

**Key Beliefs & Issue Involvement:** On many measures, the *Concerned* are midway between the *Alarmed* and the less-engaged middle segments. The *Concerned* are less likely than the *Alarmed* to espouse some of the key beliefs on the issue, such as certainty that human-caused global warming is happening and that they are at risk. They are, however, higher than all segments other than the *Alarmed* on each of the key beliefs. The largest difference between the *Concerned* and *Alarmed* is the proportion reporting high levels of involvement with climate
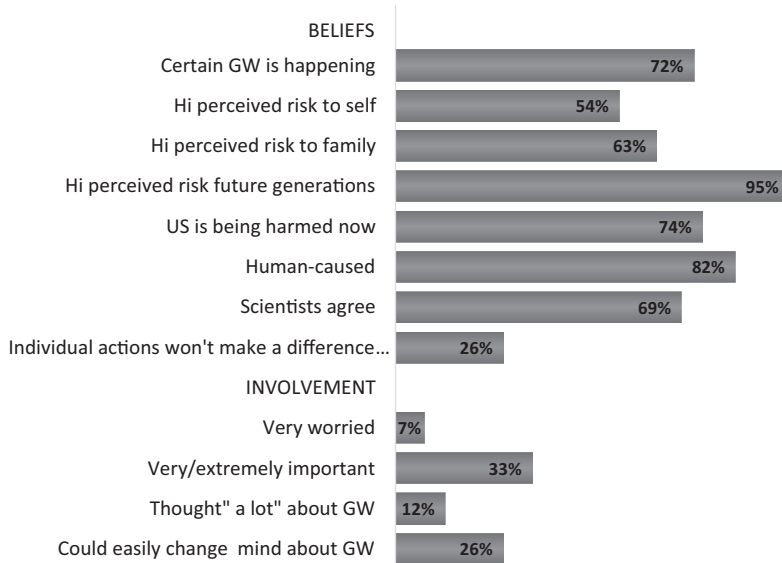
*Figure 27.7*   The Concerned

*Note*: See Appendix for item descriptions; Source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

change: Only 7% of the *Concerned* are very worried about climate change, compared to 89% of the *Alarmed*, and only 12% report having thought "a lot" about climate change, compared to 67% of the *Alarmed* (Figure 27.7).

   **Characteristics:** The *Concerned* are less politically left-leaning than the *Alarmed*, but more liberal than the remaining segments. They value egalitarianism over individualism, but are closer to the national averages than the *Alarmed*. Demographic distributions of the *Concerned* – gender, ethnicity, education, age, and income – are close to national averages, although they are slightly more likely to be younger and female.

   **Informational Needs and Media Use:** Like the *Alarmed*, the *Concerned* are most likely to say they'd like to learn what the U.S. and they themselves can do to reduce global warming; these proportions are lower than for the *Alarmed*, however, and they are more likely than the *Alarmed* to want to know whether global warming is happening, and how experts know it is happening. Although two-thirds report paying at least "some" attention to information about global warming, the proportion paying "a lot" of attention (17%) is much lower than among the *Alarmed* (53%). Their media use habits are similar to national averages, except they are more likely to follow environmental news.

## High involvement communication strategies

The goal of strategic communication with highly involved audiences should be motivating action, particularly consequential actions like political advocacy. Even among the *Alarmed*, political advocacy is not the norm; e.g., less than a third have contacted an elected official about global warming over the past year.

   *Systematic Information Processing:* Dual–processing theories such as the Elaboration
   Likelihood Model suggests that high-involvement audiences like the *Alarmed* and *Concerned* will be receptive to complex, information–rich messages, including relatively high–level

science and policy content (Petty, Brinol & Priester, 2009); these messages may be delivered via print media, which require greater processing effort. Because messages to these audiences will likely be processed effortfully, the message content is more likely to be remembered, and effects are more likely to be long-lasting in guiding subsequent behavior (Petty et al., 2009). A caveat is that it becomes more important to use strong, logically sound arguments for action, since weaker arguments are more likely to be detected, and may lead to a potentially *lower* level of behavior change than if no message had been received (Petty et al., 2009).

*Efficacy:* The *Alarmed* and *Concerned* tend to have high levels of concern about climate change, but lower levels of efficacy with regard to solving it: A quarter of these segments' members believe that individual action on climate change won't make a difference. Hence, communicators should focus on building efficacy to complement the groups' high-risk perceptions to motivate them to take action.

Several forms of efficacy are relevant for climate change: *Response* efficacy – the belief that responses to the threat will be effective in reducing it; *self*-efficacy – the belief that one is capable of taking these actions; and *collective* efficacy – the belief that one's group is capable of acting effectively together (Bandura, 1986). Much evidence suggests that people who feel both threatened and capable of taking threat-reducing action are more likely to take action (Witte & Allen, 2000), and meta-analysis shows that threatening information only promotes behavior change when efficacy is also high (Peters et al., 2013).

An additional strategy with the *Alarmed* is tapping their potential to act as opinion leaders, thereby reaching less involved people who are more likely to be influenced interpersonally than through the mass media. Rather than trying to communicate with all people directly, climate communicators can instead promote opinion leadership among the *Alarmed*, encouraging them to discuss the issue with their friends and family more frequently (Nisbet & Kotcher, 2009). Targeting those *Alarmed* who are already opinion leaders – i.e., people who are well-connected socially and who frequently give advice or have their advice sought out by those they are connected to – is particularly desirable. These people can use personal influence within their social networks to create a larger overall effect than if the communicator had tried to reach the same audience directly.

The ideal opinion leader is one who is both a role model for helpful behaviors and who explicitly communicates about why the behaviors are helpful (Venkatraman, 1989). Members of the *Alarmed* and *Concerned* segments are more likely than others to talk about global warming and are more likely to engage in behaviors designed to reduce carbon emissions, making them good candidates for this type of leadership.

## Low involvement publics

### *The cautious*

**Key Beliefs & Issue Involvement:** The *Cautious*, simply put, have low issue involvement. They're more likely to believe climate change is happening than not, but less than a third are certain; over 90% understand that future generations are at risk, but only a quarter believe they are personally at risk. Almost none view the issue as personally important. Global warming is far from their minds – to them, it's a problem for people in the future (Figure 27.8).

**Characteristics:** In some ways, the *Cautious* are the least distinctive segment. Their levels of egalitarianism and individualism match national averages; close to half are moderates, and their ethnicity and incomes match national averages. They are, however, distinctive on

BELIEFS
Certain GW is happening — 30%
Hi perceived risk to self — 26%
Hi perceived risk to family — 29%
Hi perceived risk future generations — 93%
US is being harmed now — 21%
Human-caused — 44%
Scientists agree — 41%
Individual actions won't make a difference… — 43%
INVOLVEMENT
Very worried — 1%
Very/extremely important — 1%
Thought" a lot" about GW — 3%
Could easily change mind about GW — 51%
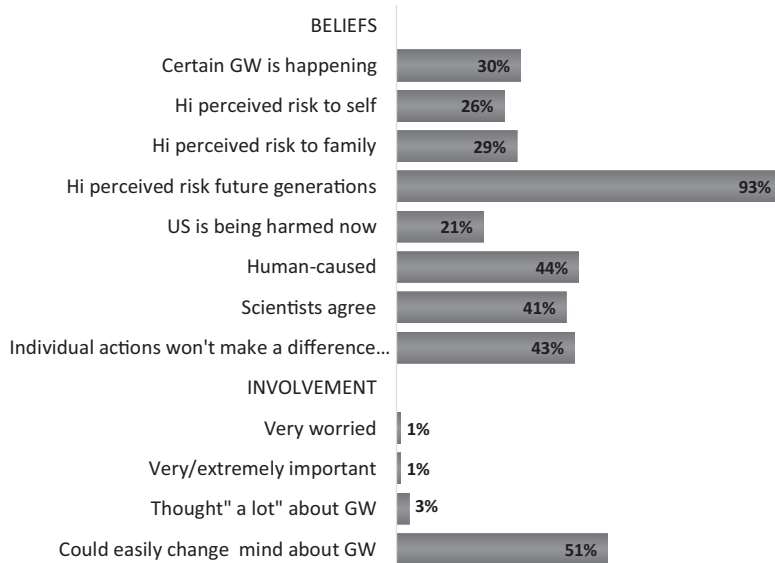
*Figure 27.8*   The Cautious

*Note*: See Appendix for item descriptions; Source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

several dimensions: two–thirds are Republicans. They tend to be over 35 and male, and only a quarter have a college degree, compared to a third nationally.

   ***Informational Needs and Media Use:*** The top questions that the *Cautious* have about climate change are whether it is real and how scientists know it is human–caused. They're unlikely to encounter the answers, however: Close to 70% say they pay little or no attention to global warming information.

   While they report average levels of media use, they pay less–than–average attention to news, and three–quarters say they follow environmental news "a little" or "not at all." Hence, reaching them through informational channels may be challenging.

## The disengaged

***Key Beliefs and Issue Involvement:*** The *Disengaged* are the least likely to have given the issue of global warming any thought. On questions with a "don't know" response option, they overwhelmingly choose this response – e.g., in April 2020, almost all said they don't know how much global warming will harm them, their family, or future generations. While one–third said they are certain that global warming is happening, 70% also said they could easily change their minds on the issue. None are very worried. If pressed, however, they are inclined to believe that global warming is somewhat dangerous: When no "don't know" response option is offered, 27% of the *Disengaged* say Americans are being harmed now (Figure 27.9).

   ***Characteristics***: The *Disengaged* have lower socio–economic status than other segments: They are least likely of the segments to have a college degree, and a third have not graduated from high school. They have the lowest incomes. About 60% are women, and more than a quarter are African–American.
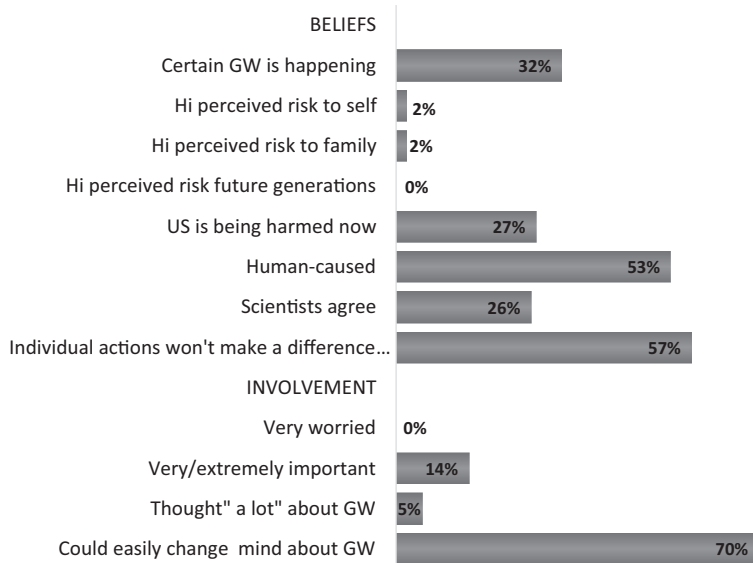
*Figure 27.9* The Disengaged

*Note*: See Appendix for item descriptions; source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

They tend to be politically moderate or have no party identification and many are uninterested in politics; they have the lowest proportion of registered voters. Their levels of egalitarianism and individualism are about equal and similar to national norms.

*Informational Needs and Media Use:* The *Disengaged* say they need more information on global warming, but are unlikely to seek it. They are high television viewers, watching more entertainment programming than other groups, but less news and public affairs. They pay the least amount of attention to national politics of the six segments, and three-quarters say they pay little or no attention to global warming information.

## Low involvement communication strategies

Reaching and engaging audiences that are uninterested in an issue begins with the recognition that no matter how important we believe our message to be, audience members are unlikely to pay attention if understanding the content requires cognitive effort – hence, we must turn to methods that are not effortful. These include message strategies that:

- Require only peripheral/heuristic information processing, e.g., visual imagery, humor, and attractive or highly credible sources;
- Promote positive social norms by demonstrating that climate-friendly behaviors are popular, respected, and common;
- Show rather than tell what is happening, thereby triggering automatic information processing;
- Personalize the threat by showing impacts on places that are physically close or emotionally significant (such as national parks), and on people with whom the audience identifies;
- Generate involvement through the use of narratives.

*Table 27.1* Ability and Motivation Barriers

|  | Alarmed | Concerned | Cautious | Disengaged | Doubtful | Dismissive |
|---|---|---|---|---|---|---|
| "I have difficulty understanding news reports about global warming." | 23% | 39% | 44% | 77% | 35% | 19% |
| "In general, I don't like to read or hear anything about global warming." | 10% | 28% | 37% | 59% | 57% | 72% |

*Note:* Cells show the proportions that agree with each statement; Source: Yale/George Mason, June 2011; n=1,043

These communication strategies apply to all segments, in that we are all influenced by social norms, we all become emotionally engaged with compelling narratives, are drawn to attractive sources, and process visual information effortlessly and instantly. They are, however, particularly applicable to the *Cautious* and *Disengaged* because these groups lack the drive to pay attention that characterizes involved segments.

Barriers communicators face with low involvement audiences are motivation and ability, two prerequisites for deep information processing: Three-quarters of the *Disengaged* and 44% of the *Cautious* say they have difficulty understanding global warming news; over half of the *Disengaged* and more than a third of the *Cautious* say they don't like to read or hear about the topic (Table 27.1). Note, however, that these barriers exist across all six segments, with the close of a quarter of the *Alarmed* saying they have difficulty understanding and majorities of the *Doubtful* and *Dismissive* saying they don't want to read or hear about the issue. Either barrier can be sufficient to halt information processing, and the challenge for communicators is to create content that will draw audiences in and be simple to understand.

While the use of attractive, credible sources and humorous messages may generate the short-term engagement typical of peripheral/heuristic message processing, such effects tend to be short-term and unstable; hence, communicators may wish to employ additional strategies in reaching the *Cautious* and *Disengaged*.

*Narratives:* Because neither segment attends to global warming news, narratives may be an effective way of reaching them – particularly the *Disengaged*, with their high use of entertainment programming. Narratives foster involvement with a story and characters, and prior issue involvement is unnecessary for drawing the audience's attention. Memory of narrative content tends to be high, allowing educational content to be conveyed, and studies find that the persuasive effects of fiction can be as high as for non-fiction if the individual has become absorbed in the story (Green & Brock, 2000). An empathic response to story characters fosters acceptance of their values and beliefs, at least in the short-term, and some evidence suggests that absorption decreases counter-arguing and increases message acceptance (Slater & Rouner, 2002).

*Social Norms:* Another strategy that may be effective with low-involvement audiences is the promotion of positive social norms, which can influence both attitudes and behaviors (Cialdini & Trost, 1998). Greater normative influence has been found among low-involvement audiences (Petty & Brinol, 2012).

Social influence works for three reasons: (1) people wish to maintain a positive self-image, both in their own eyes and in the eyes of others; (2) there are social rewards for conforming to group norms; and (3) when people are uncertain of the acceptable and/or appropriate

perspective on issues and behaviors, the views and actions of others can be a helpful guide. Such influence occurs at a largely unconscious level through peoples' observation of the actions of others (descriptive norms), and through learning what respected others expect us to do (injunctive norms).

Sometimes environmental communicators unwittingly use descriptive norms to promote behaviors they wish to extinguish by stating how prevalent undesirable behaviors are. If possible, a better approach is to emphasize the desirable attitudes and actions that are widespread, growing in popularity, and characteristic of admired individuals. Maintaining consistency between descriptive and injunctive norms is an important component of effective norm messaging: This behavior is widespread *and* socially approved (Cialdini, 2003).

## Involved publics with skeptical climate change attitudes

### *The doubtful*

**Key Beliefs & Issue Involvement:** The *Doubtful* have similar levels of issue involvement to the *Concerned*, but low acceptance of the key beliefs. Only one in ten is certain global warming is occurring or human-caused, and they view it as a very low risk. None are worried about global warming, and 80% are unaware of the scientific consensus. Although they do not actively think a lot about climate change on a daily basis, they are moderately certain of their views, with the majority saying they could not easily change their minds. The *Doubtful* have concluded that climate change is not an important issue, but are not strident in their views (Figure 27.10).

**Characteristics:** The *Doubtful* are politically conservative; fewer than 5% identify as liberal, while 70% say they are conservative. Party identification skews strongly Republican. Among the segments, the *Doubtful* are the second lowest in their level of egalitarianism,
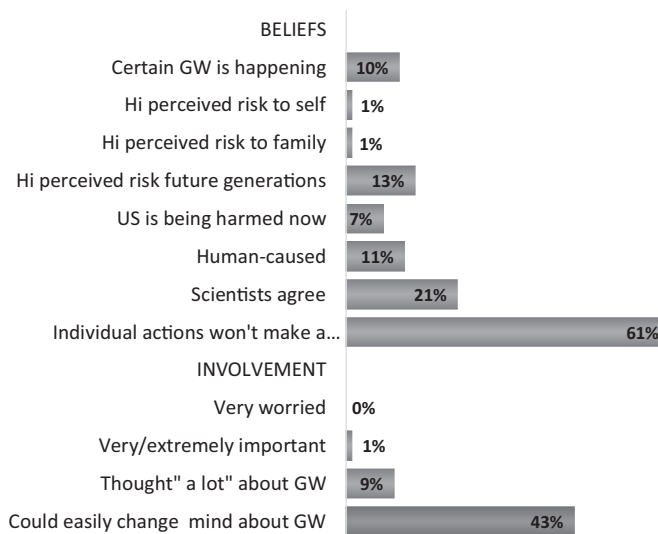


*Figure 27.10*    The Doubtful

*Note*: See Appendix for item descriptions; Source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

and second highest in their levels of individualism. They have the highest proportion of non–Hispanic Whites of the six segments, and they're more likely to be older males.

   ***Informational Needs and Media Use:*** The *Doubtful* would most like to know how scientists know that climate change is real – the proportion with this question is twice the national average. They are unlikely to attend to the topic, with only 6% saying they pay a lot of attention to global warming information. Few follow environmental news, but they do pay an average amount of attention to news about politics.

## The dismissive

***Key Beliefs & Issue Involvement***: The *Dismissives* are the inverse of the *Alarmed* – strong issue partisans, but with a diametrically opposed position. Their beliefs about global warming are not very different from the *Doubtfuls'*, but they are distinct on several dimensions: The Dismissive do not perceive *any* risk from climate change, while some *Doubtful* acknowledge that future generations may be harmed and people in the U.S. are being harmed now. A mere 14% are aware of the scientific consensus on climate change, compared to 90% of the *Alarmed* and 56% nationally.

   Most importantly, the *Doubtful* and *Dismissive* are distinguishable by *Dismissives'* higher levels of issue involvement. While climate change is a greater presence in the everyday thoughts of the *Alarmed* – they are three times more likely to think "a lot" about climate change than *Dismissives* (67% vs. 22%) – *Dismissives* are the least likely of any segment to say that they could change their minds on the topic (Figure 27.11).

   *Characteristics:* More than 70% of the *Dismissive* are somewhat or very conservative. Sixty percent identify as Republicans, with only 3% Democrats, and their cultural values are the least egalitarian and the most individualistic of any segment.



BELIEFS
Certain GW is happening — 9%
Hi perceived risk to self — 1%
Hi perceived risk to family — 1%
Hi perceived risk future generations — 0%
US is being harmed now — 0%
Human-caused — 12%
Scientists agree — 14%
Individual actions won't make a difference… — 68%
INVOLVEMENT
Very worried — 0…
Very/extremely important — 0%
Thought" a lot" about GW — 22%
Could easily change mind about GW — 17%
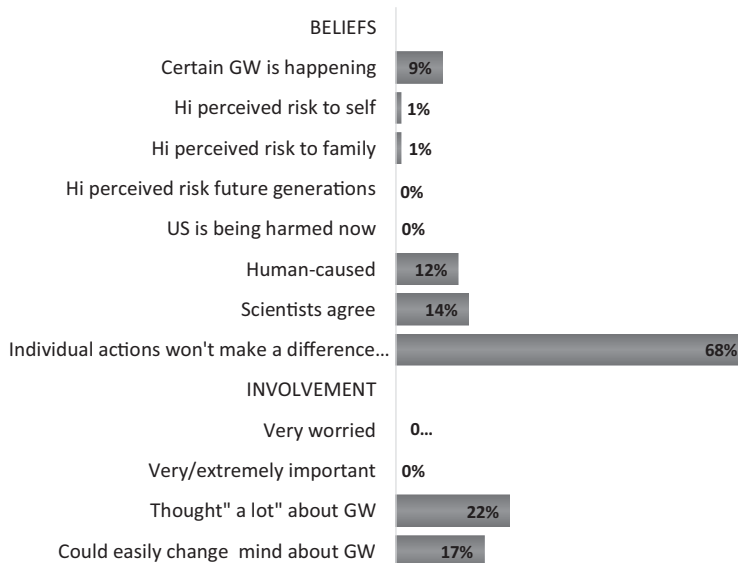
*Figure 27.11*   The Dismissive

*Note*: See Appendix for item descriptions; source: Yale/George Mason University, April 2020, unweighted n=1,029; and April 2019, unweighted n=1,291.

Demographically, they are more likely to be White than the national average, and two-thirds are male. The *Doubtful* and *Dismissive* are the oldest of the six segments, with an average age of over 50.

***Informational Needs and Media Use:*** The question *Dismissive*s would most like answered is how climate scientists know that climate change is real; they are very unlikely to ask about anything else. *Dismissives* pay more than average attention to political news, but less attention to news about the environment, science, and technology. Unlike other segments (including the *Doubtful*), the *Dismissive* are unlikely to trust scientists on climate change.

## Counter-attitudinal communication strategies

Hard-to-reach audiences such as the *Doubtful* and *Dismissive* can be engaged by adopting non-confrontational approaches, and by framing messages in ways that are consistent with their values. Directly challenging their beliefs is likely to trigger counter-arguing, rather than persuasion, in a process of motivated reasoning (Kunda, 1990). Thus, counter-attitudinal messages are likely to be rejected, while pro-attitudinal messages are accepted.

The *Dismissive*s' high issue involvement means their inclination toward biased processing is strong. Any mention of climate change may result in a "boomerang effect" (Hart & Nisbet, 2012), in which an attempt at persuasion results in attitude change in the opposite direction than desired, due to counterarguments generated by the message recipient.

The likelihood of biased processing is lower among the *Doubtful*. Though skeptical, they hold their attitudes and beliefs about climate change less fervently, spend less time and energy thinking about climate, and are less likely to have the motivation to closely scrutinize climate change communication. Emphasizing scientific agreement on the reality of climate change may help the *Doubtful* become less skeptical, as the consensus message has been shown to facilitate acceptance of climate change among Republicans (van der Linden et al., 2015).

Non-confrontational communication involves understanding and acknowledging the underlying motivational structures beneath expressions of climate skepticism. Individuals develop their understanding of societal issues with reference to their underlying cultural values (Kahan & Braman 2006), and the moral values of liberals and conservatives differ (Graham, Haidt & Nosek, 2009). Climate change is perceived by some conservatives as a threat to the values of individualism and respect for the established order that marks political conservatism in the United States (Kahan et al. 2011).

Climate messaging is typically framed in terms of moral values central to liberals – harm and fairness; rarely are messages framed referencing the conservative values of group loyalty, purity/sanctity, and respect for authority. Republicans and conservatives respond more positively to messages asserting that action on climate is patriotic, that it shows respect for authority, and that it preserves the sanctity of nature (Wolsko et al., 2016).

Conservative sources presenting free-market solutions can also increase skeptics' responsiveness: Trust in a fictive climate change scientific expert increased among those with individualistic and hierarchical values when that expert advocated nuclear power (as opposed to government regulation) as a policy solution (Kahan et al. 2011). Similarly, descriptions of free market solutions to climate change increased Republicans' willingness to acknowledge that climate change is real, overcoming their "solution aversion," i.e., their readiness to reject climate science because they perceive that its solutions conflict with

their values (Campbell & Kay, 2014). Health frames may also work with these segments (Myers et al., 2012), along with conveying personal experience with climate for the Doubt-ful (Myers et al., 2013).

## Discussion

While theory and prior research can guide decisions about communication strategies appro-priate for publics with different beliefs and issue involvement, real-world communication involves audiences containing multiple publics. This challenge may be addressed in several ways:

1   Digital marketing tools and examination of the channels most used by particular seg-ments permits targeting to some extent: The *Alarmed* are unlikely to watch Tucker Carl-son, or the *Dismissive,* Rachel Maddow. Building opinion leadership among the *Alarmed* may be best accomplished through specially focused channels, such as environmental magazines, email newsletters, and social media postings by environmental, scientific, and social action organizations. A strategy employed by a number of organizations is to ask those who have signed a petition or made an online donation to repost the original request they received on Facebook or to email it to their friends and families, encour-aging them to act as opinion leaders, fostering interpersonal (although mediated) com-munication, and broadening the original message's impact.
2   Reaching low-involvement segments is likely to require the use of channels that have a broad, mass audience. Low involvement strategies are most likely to be effective in these channels, as they have demonstrated efficacy across audiences.
3   Messages should be layered, including both efficacy-building and threat content. The low-involvement publics need to be taught the danger posed by climate change, but placing too much emphasis on the threat may lead to defensive avoidance and despair among the *Alarmed* and *Concerned,* who already understand the threat and are fearful. It has sometimes been suggested that threat information should be dropped altogether – that the audience has heard enough about the threat and positive, efficacy-building messages are sufficient. A meta-analysis finds, however, that both risk perceptions and efficacy beliefs are necessary to motivate action (Peters et al., 2013).

There remains a gap between these communication strategies and the actual crafting of ef-fective messages. For example, an experimental effort to engage *Dismissives* using a national security frame backfired: Although national security is prized among the *Dismissive*, a short essay attributed to a general concerning the national security threat posed by global warming resulted in anger, rather than persuasion (Myers et al. 2012). *Dismissives* simply did not be-lieve this to be the case, and the essay may have fostered counter-arguing, resulting in back-lash effects. By contrast, a public health frame was more effective, across all six segments.

## Conclusion

The time window within which we can act to prevent the most serious impacts of climate change is closing. Understanding the differences in people's uses of and responses to climate messaging can help communicators motivate the multiple audiences of the Six Americas to respond appropriately.

# Appendix

## Measures of Key Beliefs & Issue Involvement

Figures 27.6–27.11 show the proportions of respondents with the following beliefs

1   *Certainty that global warming is happening:* "Extremely sure" or "very sure" global warming is happening.
2   *Risk Perceptions:*

- *Amount of harm:* They, their families and future generations will be harmed "a great deal" or "a moderate amount."
- *Timing of harm:* People in U.S. are being harmed now.

3   *Human Causation:* "Assuming global warming is happening," it is caused mostly by human activities.
4   *Scientific Agreement:* Most scientists think global warming is happening.
5   *Efficacy:* Low efficacy is indicated by agreement with the statement, "The actions of a single individual won't make any difference in global warming."
6   *Worry:* Very worried about global warming.
7   *Personal importance:* Very or extremely important personally.
8   *Prior Thought:* Have thought "a lot" about global warming before today.
9   *Opinion Certainty*: Low certainty is indicated by agreement with the statement: "I could easily change my mind about global warming."

## Further reading

The original segmentation methods and validation were described in this article:

Maibach, E., Leiserowitz, A., Roser-Renouf, C., & Mertz, C. K. (2011). Identifying like-minded audiences for climate change public engagement campaigns: An audience segmentation analysis and tool development. *PLoS ONE*, *6*(3), e17571.

A more recent study shows that the segments can be reliably identified using only four questions, rather than the 36 used in the original segmentation. Links are provided to enable users to segment their own audiences:

Chryst, B., Marlon, J., van der Linden, S., Leiserowitz, A., Maibach, E., & Roser-Renouf, C. (2018). Global warming's "Six Americas Short Survey": Audience segmentation of climate change views using a four question instrument. *Environmental Communication*, *12*(8), 1109–1122.

An overview of the research program and recommendations for climate change communication is described here:

Leiserowitz, A., Roser-Renouf, C., Marlon, J., & Maibach, E. (2021) Global Warming's Six Americas: A review and recommendations for climate change communication. *Current Opinion in Behavioral Sciences*. DOI: 10.1016/j.cobeha.2021.04.007

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# 28

# COMMUNICATION AND COMMUNITY TRANSFORMATION

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## Introduction

This chapter focuses on how environmental communication may enable people to transform their communities. As indicated throughout this handbook, environmental communication emerges in a variety of venues, and both facilitates and constrains meaningful opportunities for citizens to engage in community transformation. Environmental communication research has identified and explored numerous ways that critique and contestation open possibilities for composing new social patterns. In this chapter, we identify and query ways that environmental communication enables democratic transformation toward greater sustainability, while conceding that such transformations always entail both gains and losses for both humans and more-than-humans. Analysis of these projects can offer broad heuristics for composing institutional arrangements that facilitate more meaningful participation in community politics, along with a recognition that the appropriateness of those arrangements depends largely on community dynamics.

While the term, "community" has multiple culturally, politically, and spatially focused definitions, we are leery of definitions that would limit the meaning to any one of these frameworks. For a definition that is less culturally, politically, or spatially limited, includes communities that cross a variety of such boundaries and emphasizes communicative process, we turn to Depew and Peters (2000), who describe communities as collectives that involve "relationships, families, neighbourhoods, voluntary associations, municipalities, regions, or nation states" (3). Our exploration of community transformation follows Peterson et al.'s (2007) articulation of Leopold's Land Ethic to explicitly include more-than-human entities as members of these communities, and then builds from Callister's (2013) land community participation (LCP) model to suggest appropriate ways for communities to facilitate the membership of more-than-human entities.

Because we see community transformation as a political process, the related concepts of *the political* and *politics* play central roles in this chapter. As such, our approach owes much to Mouffe's (1993, 2000, 2005, 2013, 2018) theorizing on democracy as a discursively constructed realm where highly diverse, and often contradictory, values, ideals, and desires play out via argumentation and debate among citizens. From this perspective, "the political" refers to an antagonistic dimension "inherent to all human societies" (Mouffe, 2013: 2),

that despite well-intentioned efforts to eradicate it, repeatedly re-emerges in hegemonic configurations. "Politics," on the other hand, refers to "the ensemble of practices, discourses and institutions that seeks to … organize human coexistence in conditions which are always potentially conflict[ed], since they are affected by the dimension of 'the political' (Mouffe, 2013: 2–3)." These definitions provide the conceptual grounding for the discussion of community transformation in this chapter.

Communication is at the crux of this suite of practices that enables citizens to transform their communities into more sustainable entities that, in turn, promote the flourishing of both human and more-than-human denizens. We consider communication as both constitutive of transformative possibilities and instrumental in bringing those possibilities to fruition. Here, we build from scholarship that links communication with democracy (i.e., Asen, 2004; Benhabib, 1996; Peters, 1999, 2005), especially as it illuminates discursive moves that enable social change and expand our understanding of the many ways humans interact with more-than-human citizens of our communities (Latour, 2004; Peterson et al., 2007).

We begin with a brief review of theory and grammars alluded to above that contribute directly to our interpretation of community transformation. Second, we highlight contributions from environmental communication scholars of community transformation, especially those engaged in transdisciplinary research (i.e., Endres et al., 2009; Givá, 2016; Sprain et al., 2010; Wedemeyer-Strombel et al., 2019). We then provide a more fully developed illustrative case focused on community livelihoods, and finally address opportunities and challenges for future communicative efforts to democratically transform communities in sustainable ways.

## Democracy and sustainable community transformation

Environmental communication research historically has been characterized by asserting the importance of simultaneously accounting for both constitutive and instrumental dimensions of communication (Cox, 2007, 2010). This double accounting has become ever more important as the research area expands in multiple directions, such as communication about global energy transitions (Feldpausch-Parker et al., 2019), between humans and more-than-humans (Milstein & Castro-Sotomayor, 2020), and as a means of constituting the Anthropocene (Biermann & Lövbrand, 2019). Despite generalized awareness that one of the most basic instrumentalities of language and other symbol systems is persuading people to think, feel, and act in some ways rather than others, awareness that communication's constitutive power is intricately woven into such efforts by marking some ways of being as unimaginable (Haraway, 1990; Hayward, 2019), and others as merely unacceptable (Peterson et al., 2005, 2006) remains elusive. This chapter seeks to demonstrate how particular compositions of communication's constitutive and instrumental dimensions enable communicators to constrain and enable the democratic realization of more sustainable communities as they articulate normalized notions of both the preferable and the possible.

Attempts to revise these notions are neither trivial nor comfortable. Because environmental communication scholars often study phenomena that have immediately demonstrable policy implications, they rarely have the luxury of pursuing their research in neutral isolation. Industrial and environmental NGOs, consumer advocates, and others will dissect publications in the hope of finding a phrase, a sentence, or even a paragraph, that can be used to justify their predetermined goals. Those goals may or may not be consistent with transforming communities in democratic ways that enable greater sustainability. Thus, whether or not environmental communication should be designated as a "crisis discipline" (Cox, 2007), it

rarely is characterized by claims of total objectivity or even neutrality. Rather, it frequently focuses on the need for change. Rather than liberate researchers from their responsibility to provide empirical evidence for claims, their admitted interest in outcomes increases the obligation to provide that evidence, while also leaving them vulnerable to guardians of the status quo.

Transformational environmental communication research aligns well with theoretical perspectives that emphasize the ordinariness of communication as a perpetual struggle to overcome alienation (Burke, 1959, 1984; Peters, 1999, 2005). Although the debate over communication as a response to alienation exceeds the parameters of our chapter, some elements seem particularly relevant to contemporary scholarship. First, heeding Peters' (1999) warning against the constructivist solipsism that limits anything beyond the self to a social construct can encourage scholarship that retains its intellectual integrity without withdrawing into the illusion of isolated *post* ontology. Second, Burke's (1959) claim that one of the most powerful motivations for communication with others is "to combat alienation by immediacy" (218) suggests the importance of shared emotional and sensory experience. Third, and unequivocally aimed at environmental communication research, Rogers' (1998) call for a "transhuman materialist" approach encourages explorations of communication across and within all manner of communities that consciously include more-than-human citizens. Together, these insights suggest motives for considering environmental communication as an inherently political practice, as well as extending our study of that practice beyond communication amongst humans.

We see community transformation as embedded in democratic practices that emerge from *multiple* public spheres, formed by diverse communities, and called into being through communication (Breese, 2011; Carvalho & Peterson, 2012). Appropriate scales for transformation range from highly local to transnational, including varying scales in between. Further, these scales change, depending on characteristics of a community's citizens, issues under consideration, and international political context. Mouffe's claim that democracy "must make room for competing conceptions of our identities as citizens" (2005: 7) suggests that community transformation needs to involve increased pluralism in addressing natural environments at all junctures of political life. We find her recent emphasis on particularity (2013, 2018), whether referring to historical contexts, cultural norms, or power relations especially useful.

Within this milieu, rather than seeking consensual deliberation, community transformation means celebrating opportunities to work within agonistic politics. Especially given the rapid escalation of migration rates (both humans and more-than-humans) associated with anthropogenic climate change, it makes sense for environmental communicators to recognize and plan for situations where conflicting political subjectivities constrain possibilities for democratic participation. From this perspective, the predominant constitution of people as passive consumers rather than active citizens obstructs community transformation. Shifting this obstruction will require emancipation processes that provide spaces where marginalized voices participate in meaningful face-to-face encounters, in mainstream and alternative media, and in ever diversifying digitized spaces. In all these spaces, dissent should be normalized, and even welcomed, despite the inevitable inconveniences (Peterson et al., 2005, 2006, 2007). Such spaces could contribute to traditional civic mobilization, to engagement with social movements, and to incorporation of diverse views on community development.

While we recognize that the grammar of citizenship is at the crux of a legal and political maelstrom that extends far beyond the limitations of this chapter, we also find it to be a basic

component of both *the* political and democratic politics. Mouffe's rejection of democratic essentialism emphasizes the relationality and fluidity of political identities, such as citizenship, as emergent from the "contingent and pragmatic form of their articulation" (2005: 7). This is consistent with Asen's (2004) process-oriented perspective toward citizenship, which we embrace. He articulates citizenship as a process that is open-ended and variable in its expressions, noting that the ways people enact their citizenship matter far more than any quasi-official definition. Healthy public spheres, he argues, welcome "fluid, multimodal, and quotidian enactments of citizenship" (191). We now turn to a brief review of diverse contributions environmental communication researchers have made to rethinking community and the role of communication in promoting or hindering citizen engagement in decisions about their communities.

## Transformative communication across communities

As indicated above, a variety of definitions for community extend beyond geographic space. Communities also provide shared spaces for beliefs, cultures, ideas, ideologies, practices, and values. Furthermore, they tend to be perennial and to engender a sense of belonging among members. These last two points differentiate communities from concepts of the public, which are commonly referenced, but rarely defined, in public participation and engagement literature. Communication with the public tends to be conceived as an isolated event, often limited to the length of time needed to accomplish pre-determined goal. Warner defines *the* public as "a kind of social totality" that implies people in a generalized sense (2002: 49). Communicating with the public often is reduced to messaging, and treats this generalized group as homogeneous, failing to account for diversity. She differentiates *a* public or *publics*, as forming and operating through several processes including (1) self-organization; (2) "relation among strangers" (2002: 55); (3) "mere attention" (2004: 60); (5) "reflexive circulation of discourse" (2002: 62); (6) interaction based on "the temporality of their circulation" (2002: 68); and (7) opportunities for "poetic world-making" (2002: 82). Although Warner's *publics* provides a more nuanced framing that acknowledges heterogeneity, it retains the emphasis on temporality found in traditional conceptualizations of the public, and, although the possibility that members may develop a sense of belonging is not excluded, neither is it intrinsic. Although our focus on communities is not an attempt to dismiss the importance of publics, their differentiation matters, especially when attempting a transformation.

Mouffe's (2000, 2013) claims that the heterogeneity of nominally democratic entities necessitates an agonistic politics further contextualizes both the complementary and differences between Warner's definition of publics and our approach to community transformation. In democratic societies, engagement with publics is meant to be inclusive of its citizenry. Much like a public, a community is also a space defined by discourse, but unlike the "relation among strangers" (Warner, 2002: 55), citizens of a community are more likely to self-identify as belonging to, rather than simply inhabiting a particular space. Because they belong, the significance of "poetic world-making" noted by Warner attains greater centrality as a means of promoting resilience. Joint efforts toward poetic world making, then, shape community transformation.

Our perspective toward communication relies on the assumption that discourse is intimately tied to power and notions of truth and is thus steeped in ideology (Foucault, 1977, 1978). Hajer defines discourse as "a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through

which meaning is given to physical and social realities" (1995: 44). As Feldpausch-Parker, Parker and Vidon point out,

> discourse acts as the mechanism through which the subject … and ideology are joined…. Discourse therefore has the ability to act as a divisive force with the power to establish insider from outsider and to alienate those individuals and groups who are excluded.
>
> *(2017: 37)*

This description of discursive power simultaneously highlights the futility of attempting to transform communities by constructing a social world beyond alienation and hegemony (Mouffe, 1993, 2000, 2005, 2013) and suggests a more pragmatic approach. Because transformation includes both construction and destruction, and every new construct includes the seeds for its eventual destruction (Burke, 1969; Peters, 1999), community transformation offers an opportunity to compose new power configurations that respond to both newly discovered and longstanding needs experienced by the citizens of that community.

We now turn to examples that of community transformation, pulling heavily from Peterson et al.'s (2016) exploration of attempts to develop more sustainable communities by re-politicizing activities that had been depoliticized as part of the celebrated (by some) ascendancy of political centrism, such as new cosmopolitanism (Archibugi & Held, 1995) and the third way (Hale, Legget, & Martell, 2004). The examples in this section demonstrate that transformation attempts that enjoyed some modicum of success did so by expanding the margins of public life sufficiently to shift pre-existing hegemonic configurations in ways that revised, rather than doing away with, power relationships.

Environmental conflicts sometimes escalate to the point where rivals engage in armed conflicts that can erupt into physical violence, leaving communities shattered (Duffy et al., 2019). Even in such drastic situations, sensitive discursive articulation (Daniels, Walker, & Emborg, 2012; Emborg, Walker, and Daniels, 2012) can help citizens compose narratives that animate transformed communities. Liles et al. (2014) worked with communities in El Salvador and Nicaragua to transform a hostile relationship between international conservation groups and local citizens. Liles and his colleagues successfully argued for a conservation approach to endangered hawksbill sea turtles that enabled locals to play an integral role that included, but was not limited to, economic remuneration. They (Liles et al., 2016) then collaborated with citizens of both communities to create the Hawksbill Cup (loosely modeled on the culturally central CONCACAF Gold Cup in *Fútbol*), which has transformed turtle conservation from a peripheral activity led by outsiders to a celebration of village life led by local heroes. Wedemeyer-Strombel et al. (2019) contributed to further transformation by engaging citizens directly in decisions about how and where to collect ecological data used to significantly revise scientific knowledge of the life history for these endangered sea turtles.

Some researchers directly identify processes for recognizing and navigating institutional protocols and conventions as crucial for democratically transforming communities in ways that enable increased sustainability. Raitio (2016), for example, contrasted efforts toward community transformation in Canada's Great Bear Rain Forest (GBRF) with those in Finland's Inari Forest. She argues that community transformation was successful in the GBRF, largely because those involved in decision-making openly struggled with the democratic paradox between liberality and equality, using the struggle to re-negotiate the power relationships among participants. On the other hand, rather than even recognize this political paradox, those who were responsible for management decisions regarding the Inari Forest

attempted to bury the paradox, leading to further escalation of the conflict and increased hostilities. Bernacchi and Peterson (2016) showed how discursive narratives can both constrain and enable partnerships between communities. They analyzed the discourse of a failed partnership between technical experts primarily constituted by US Fish and Wildlife Service (USFWS) personnel, and citizens of a place-based community who were eager to assist in biodiversity conservation. Their analysis demonstrated how tenacious devotion to a pre-existing community narrative, despite being shared by both communities, narrowed the possibilities for engaging in join political action and led to increased alienation between the two communities. They suggested that, rather than pretend away institutional boundaries between the two communities, the potential for partnership would be better served by joint activities directed toward composing a new narrative that encouraged citizens of the place-based community to focus on important aspects of biodiversity conservation that current law and rulings allowed them to influence, rather than obsess over aspects of the situation they could not influence.

Other studies focus on ways that institutional arrangements and communication may interact to normalize traditional patterns, or alternatively, to call new patterns into being, and subsequently facilitate new configurations that better meet contemporary needs. As Banerjee (2016) notes, India's Joint Forest Management (JFM) Program was intended to transform forest conservation from its history of post-colonial enterprises that alienated citizens from their places. The JFM Program claimed to involve forest dwellers directly in decisions about how to conserve the forests and to ensure that they benefited from that conservation. In Banerjee's study sites, however, citizens experienced JFM as simply another attempt to obliterate their longstanding place relationships. Without recognizing and deconstructing pre-existing hegemonic relations rooted in colonializing institutions, JFM agents found themselves reduced to further reifying alienation between themselves as representatives of national and supranational entities and local residents who saw themselves as citizens of the forests. Hansen and Peterson (2016) examined the Swedish Dialogue for Nature Conservation (DNC), which was intended to transform community relations associated with nature conservation in Sweden from adversarial to cooperative. They used a Habermasian (1984, 1989) perspective to trace the DNC from an emergent idea through its deployment as a training program. They point out that, in the process of operationalizing the DNC, the technological rationality that characterizes bureaucracy overcame the communicative rationality originally envisioned, which meant that the dialogue was reduced to a skills training program.

On a more hopeful note, Banerjee et al. (2019, 2020) found that social learning workshops could provide opportunities for communities of previously isolated and alienated citizens to influence nature conservation by shifting the hegemonic configurations in ways that allowed their participation in decisions about their places. Levkoe, McLaughlin, and Strutt (2021) also examine how the vestiges of colonialism interact with community transformation in their analysis of the Indigenous Food Circle's (IFC) dialogical approach to food security in Northwestern Ontario (Canada) during the crisis represented by the COVID-19 pandemic. They found that one of the IFC's most impactful strategies was discursively centering food security within Indigenous food sovereignty. This enabled ongoing discursive processes that simultaneously help citizens navigate both the material and symbolic dimensions of settler colonialism and capitalism.

Callister (2013, 2016) suggests an approach to community transformation designed expressly to encourage collaboration while maintaining space for dissent. She describes language as a "discursive lubricant" for citizens who previously have constructed each other as evil, while also noting the importance of creating safe spaces where this discursive interaction

can occur. Such interactions take advantage of both rhetorical and dialogic dimensions of discourse. Although she recognizes the importance of developing institutional arrangements that will allow participants to carry their incipient collaborative attitudes beyond the relatively safe space of facilitated conversations, Callister's research focuses on how symbolic interaction within those spaces can empower citizens to act assertively when they engage in the boisterous and sometimes dangerous world of environmental politics. Her work also is valuable in response to Rogers' (1998) challenge of incorporating the more-than-human world into environmental communication (see also Latour, 2004; Peterson et al., 2007). Schutten and Shaffer's (2019) analysis of contemporary zoo experiences reconstituting current hegemonic configurations of species and nature itself (Haraway, 1990) by inviting readers to recognize the more-than-human captives in these spaces as agentic beings. Building from their rejection of "dominant ideologies used to justify captivity (e.g., human safety, rescue, and conservation)," they characterize the animals held there as refugees, which creates an obligation to compose a human zoo experience that responds directly to the resistive communication of these more-than-human prisoners. Their analysis explicitly reconfigures the community to include both human and more-than-human citizens.

We do not mean to suggest that community transformation requires such elemental reconstitutions, merely that communication can constitute a social reality wherein relations that previously were deemed impossible become possible. Feldpausch-Parker et al.'s (2016, 2017) research on the North American Model of Wildlife Conservation (NAM) demonstrates that communication's instrumental power is an equally important driver for community transformation. They explored the Canadian and U.S. wildlife management community's enthusiastic embrace of the NAM, which was popularized by Geist and colleagues. These prominent figures in the North American wildlife management community have used the NAM to encourage, impel, and justify state and federal wildlife policy for over three decades. Feldpausch-Parker et al. (2016) noted that, as interpreted by Geist and colleagues, the NAM institutionalizes a neoliberal politics as the only reasonable approach to wildlife management and valorizes the apparently involuntary support of a community formed by consumptive users, such as hunters, trappers, and anglers. Citizens of this community contribute to conservation through payment of legislatively earmarked funds from the purchase of hunting, trapping, and fishing licenses, such as the Pittman-Robertson Federal Aid in Wildlife Restoration Act and the Dingell-Johnson Sport Fish Restoration Act (both Federally legislated in the U.S.). As such, citizenship in this community is guaranteed by payment of fees and is assumed to convey the right to have a voice in decisions. This expectation is validated by natural resource managers' frequent and public endorsement of the NAM.

As with other communities, wildlife conservationists have identified outsiders, others, or those who do not belong. Most obviously, the NAM's emphasis on the earmarks mentioned above excludes all non-consumptive users from citizenship in the North American conservation community. This framing validates vociferous opposition to opening the possibility of citizenship to currently excluded non-consumptive users such as hikers and birdwatchers. At the same time, it justifies a populist outcry against taxation without representation among consumptive users because the legislation pre-dates their political awareness (and increasingly their very existence). Feldpausch-Parker et al.'s (2017) ideological critique show how this neoliberal approach narrows the possible leadership of the conservation community to active proponents of the NAM, and citizenship within that community to people who at the very least support the model. They note the materiality of these ideological limitations has trapped wildlife managers in a co-dependent relationship with consumptive use that prevents them from exploring new partnerships. Hardening the conservation community's

boundaries is especially problematic in the face of increasingly widespread national and international awareness of interconnections between human and more-than-human worlds. These concerns led Feldpausch-Parker et al. (2017) to propose that conservation managers should both critically examine the fundamental assumptions accepted within the NAM and broaden its narrative scope to incorporate a more inclusive history of actors and events that have shaped wildlife management in North America. While both practices will be disruptive and are likely to generate conflict, they also may create opportunities to explicitly solicit participation from a broader spectrum of the public. The value of such a discursive move is that, as demonstrated by other examples mentioned in this section, transformation attempts that enjoy some modicum of success do so by expanding the margins of public life sufficiently to shift pre-existing hegemonic configurations in ways that revise, rather than attempting to do away with, power relationships.

## Integrating human and more-than-human citizens into community

We now summarise a case that illustrates an array of discursive moves that facilitate and constrain sustainable community transformation. This case illustrates how conflicting political subjectivities constrain participation in community transformation and highlights the importance of recognizing and working with the inherently antagonistic dimension present within communities. Field research was conducted by Givá (2016) and formed the basis for her PhD thesis. Peterson, Feldpausch-Parker, and Givá collaboratively summarized and updated the information for this chapter.

Wildlife conservation has been integral to establishing protected areas across Earth. In Sub-Saharan Africa, most protected areas overlap with human settlements where the last decade has seen an increase in the number of people living below the poverty line (IFAD-A, IFAD-B, 2020). One reason for this increase may be that communities, where approximately 65% of the population depend on agriculture for livelihoods and sustenance, are especially vulnerable to production decline due to climate change (Why Rural People, 2020). Here, we focus on Limpopo National Park (LNP), in southern Mozambique, which connects Kruger National Park in South Africa with Gonarezouh National Park in Zimbabwe to form the international Limpopo Transfrontier Conservation Park. Protected areas make up approximately one-quarter of Mozambiquan territory, with nearly 90% entrenched with human settlements (Givá, 2016). These villages are situated in one of the most drought-prone areas in the country and are extremely vulnerable to El Niño and climate change (Givá, 2016). The people rely almost exclusively on rain-fed subsistence crop farming and livestock husbandry. Their remote location restricts the connection to markets and other opportunities for livelihood diversification.

The International Union of Conservation of Nature (IUCN) announced achievement of the "the goal of protecting at least 17% of land and inland waters… by 2020" (IUCN, 2021) in May of 2021. Data supporting this conclusion can be found in the 2020 biennial report published by Protected Planet, which was launched by the United Nations Environmental Programme (UNEP) in 2010 to provide access to global information on protected areas. Despite celebrating the expansion of protected areas, the 2020 report concludes that further progress requires "more integrated approaches to conservation and sustainable use," in order to tap into "the potential of protected and conserved areas to act as nature-based solutions to multiple socio-environmental challenges" (Conclusions and Opportunities, 2020, n.p.).

Juxtaposing the IUCN's stated goals for environmental protection with the presumed goal of increased food security for human residents of LNP suggests the futility of attempting

to manage the park without recourse to "the ensemble of [political] practices, discourses and institutions" (Mouffe, 2013: 2) that respond to antagonistic relations between and within communities. In fact, conflicts over the management of LNP demonstrate the urgent need for composing new hegemonic configurations that respond to long-standing needs of the community's citizens, as well as concerns that have emerged with the establishment of LNP. Since 2001, these villages have been enclosed in the buffer zone of LNP, which is intended to operate according to a set of principles espoused by the Peace Parks Foundation (PPF), which promulgates an integrated conservation approach that encourages the free movement of people and wildlife and acknowledges the legitimacy of both (The Dream, 2021). In practice, however, the villagers now experience wildlife incursions such as crop raiding by elephants, cattle deaths from lion attacks, and human injuries and death from a variety of wildlife. Although the dilemmas of reconciling conservation and livelihood goals in human-inhabited protected areas such as LNP are particularly acute, they are not unique to this context. Controversies over whether to prioritize wildlife conservation or human poverty alleviation, or even how to operationalize such prioritization, erupt frequently, and are not limited to LNP, the Mozambican nation, or the African continent. In these communities, a communicative orientation enables shifting the focal challenge to re-constituting a management problem as an opportunity for democratic community transformation.

Numerous strategies, such as community *agoras* (Sriskandarajah, Givá & Hansen, 2016), collaborative modeling (Banerjee et al., 2019), and co-management (Armitage et al., 2011), have developed out of an amalgamation of disciplinary literatures. Having participated in a wide variety of carefully facilitated processes on multiple continents, we are unable to point to any single approach as the most likely to enhance sustainable communities. Rather, social transformation that leads to more sustainable communities requires explicit recognition of the political, or antagonistic, dimension of any such transformation followed by attempts to navigate those antagonistic relations, rather than ignoring them. For example, given that human citizens of LNP find crop raiding by elephants especially costly, the PPF might consider integrating both human and more-than-human citizens into their success stories.

As of this writing, however, that does not appear to be occurring. Instead, the Website's celebration of "Mozambique's first in-country elephant translocation" highlights its intent "to develop the park into one of Africa's most celebrated wilderness destinations," along with a statement that "the African savanna elephant is now listed as endangered on the IUCN Red List of Threatened Species." Further, they include a solemn note mentioning that the designation is "a sad reminder of the importance of developing safe habitats for these animals" (Mozambique's First In-Country Elephant Translocation, 2021). Even recognizing traditional journalistic constraints on word count, we were surprised that the only humans to be included were those for whom LNP would become a [holiday] destination. Composing the community of LNP to exclude human inhabitants comes no closer to the transhuman materialist approach advocated by Rogers (1998) than composing the community to exclude elephants.

## Conclusions

Our objective in this chapter has been to illustrate how social transformation relates to the chaotic and sometimes hazardous world of community development, conflict, and democracy; how environmental communication research has contributed to our understanding of the political, and to suggest ways it may facilitate future transformation.

This approach is consistent with Mouffe's claim that antagonism is a condition of democracy. Within vibrant democracies, there is no unanimous solution or final closure to the heterogeneous worldviews of political subjects. Designing spaces and mechanisms for the expression of a wide range of views on environmental problems, including those in disagreement with hegemonic discourses, needs to be prioritized. Such arrangements enable confrontation of conflicting perspectives about how much one should risk and allow to be destroyed, about human consumption patterns, about both the definition and worth of economic growth, along with other social and political issues. All these issues must be assessed in relation to, rather than isolation from, each other. Accommodating such diversity opens space for those who view current policy as insufficient and inadequate, who strive for more substantial and ambitious goals, as well as for those who view any environmental policy as wrongheaded. Obviously, such accommodation poses significant challenges. Still, defining institutional mechanisms to accommodate agonistic politics is an important part of producing more inclusive responses to the enormous environmental challenges faced by contemporary society, while recognizing that these responses are necessarily temporary (Peterson et al., 2006). Nowhere is the transitory nature of environmental communication more evident than in the study of community transformation. By definition, political subjectivities shift over time and enable adaptive responses to the inevitable alienation that continually re-emerges both within and between communities. Rather than viewing this as a condition to endure, we suggest it as cause for celebration.

If one assumes the need for fundamental transformations in environmental policy, an agonistic politics provides a theoretically robust and immediately practical heuristic. Environmental communication provides both constitutive and instrumental guidance for such politics. This includes finding ways to counter attempts to depoliticize (Benhabib, 1996) environmental issues and open new possibilities for citizens to participate fully in decisions about their communities. If continued human life on Earth is a good thing and justice for all citizens is worth seeking, then the normative dimension of environmental communication (Cox, 2007) indicates an exigency to craft ever more sustainable and democratic communities. Given the PPF's goal "to reconnect Africa's wild spaces to create a future for [people] in harmony with nature" (The Dream, 2021), for example, we need new stories that explicitly explore ways to enable human and more-than-human citizens to work through their mutual alienation.

As argued here, environmental communication can encourage "practices, discourses and institutions" (Mouffe, 2013: 2) that constitute alternatives that inspire and empower citizens to revitalize their communities and that foster changes that enable, rather than disabling, community transformation. The cases noted here exemplify the diversity of transformational approaches already in play. We intend this chapter as a nudge toward further experimentation with communication as a simultaneously constitutive and instrumental practice that expands the options for sharing the resources of Earth with other human as well as more-than-human citizens.

## Further reading

Endres, D., Sprain, L., and Peterson, T. R. (2009). *Social Movement to Address Climate Change: Local Steps for Global Action*. New York: Cambria Press.
This book asks what it takes to build a politically relevant social movement in the 21st century. The editors coordinated analysis of 17 related events occurring across the United States on the 14th of April 2007. They also interacted with movement organizers prior to the event, during the book's development, and after its publication. Although the volume's contributions to understanding contemporary

movement building are useful, its transdisciplinary production process provides a powerful heuristic for anyone seeking to conduct transdisciplinary research.

Feldpausch-Parker, A. M., Sprain, L., Endres, D., Peterson, T. R., eds. (2019). *Energy Democracy: A Research Agenda*. Lausanne: Frontiers Media. DOI: 10.3389/978-2-88963-197-1.
This book critiques and theorizes energy system change from a communication perspective and articulates this global phenomenon as an opportunity to infuse more democratic practices into society. The authors simultaneously promote and demonstrate a transdisciplinary approach that blends scholarly inquiry with political engagement toward making a positive difference. The chapters present a wide variety of research-informed models and practices that may contribute to new forms of participation and governance, thus spurring unparalleled social and technological innovation.

Mouffe, C. (2013). *Agonistics: Thinking the World Politically*. London: Verso.
This volume updates Mouffe's political philosophy in response to the extreme polarization experienced within and across contemporary democracies. In addition to further developing the concept of agonism as a foundation for radical, plural democracy, she explores strategies that may open new responses to the intractable differences arising from complex modern culture. She also ventures into the politics of art in ways that may prompt productive engagement with both rhetorical and cultural communication scholarship. Although she continues to focus on the European Union, this volume explicitly demonstrates her theory's global applicability.

Peterson, T.R., Ljunggren Bergeå, H., Feldpausch-Parker, A.M., and Raitio, K. (2016). *Environmental Communication and Community: Constructive and Destructive Dynamics of Social Transformation*. London: Routledge.
This book critically examines ways communication contributes to social transformation, through concurrent construction and destruction of community. Drawing from case-studies on the American, Asian, and European continents, the authors examine communicative processes and practices that can draw attention to resources, spaces and structures that enable citizens to re-invent their communities. The analyses in this book support the perspective that antagonism is an opportunity more than an obstacle to democratic community building. Further, the diverse analytical frames and methodologies demonstrate a variety of possibilities for conducting transdisciplinary research.

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# (DIS)PLACED COMMUNICATION, SOLASTALGIA, AND A CLIMATE CHANGE DIASPORA

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It is not uncommon for people to reflect upon and yearn for places from their past that, in turn and time, have been lost to history. Some such fondly remembered locations may be merely figments of halcyon days tracing the emergence from childhood through adolescence and into adult lifespans such as youthful playgrounds, a favorite vacation retreat, or a once-lived-in town. Other losses, especially in adulthood, can affect bedrock identities wed to cherished locales and herald something much deeper than simply sappy wishes for the way things used to be. In particular, the corruption of homeland identifications by dint of human folly or natural disaster should be of keen interest to communication scholars since, to a large extent, how people position themselves in relation to environmental conditions is often born of their socially constructed identities. Our responses to cataclysmic upheavals are both shaped by and shape place-based interactions in public and private spheres, especially in cases where environmental change forces people to uproot and replant themselves in different spaces or landscapes.

Our aim in the following chapter is both simple and challenging: We hope to explicate the relationship between environmental disasters, social discourse regarding failures of public policy or preparedness confronting interlocking planetary forces, and how place-based identities change in the social and psychological response to cataclysm. Indeed, the concept of *place* is often a fundamental attribute of communication research, theory, and practice (Cantrill, 2020). As implicated by other chapters in this edition of *The Routledge Handbook of Environment and Communication,* the place is also something inherently bound-up with the study of environmental communication (Thompson & Cantrill, 2013). Here, we will briefly survey scholarship associated with the nature of place attachment and its relationship to personal identity, the role of media and interpersonal networks in amplifying or attenuating reactions to environmental disasters, and the dynamic nature of place-based discourse following significant environmental losses. In the end, we wish to pique the curiosity of other scholars regarding one possible pathway by which senses of placelessness, constituted of and in discursive contexts, supplant previous attachments between individuals and the landscapes they formerly inhabited.

## Of grounded identities and the social reinforcement of place perception

To discuss the relationship between identity and the perception of places in people's lives, it is important to distinguish the role of physical "space" from the focus of our analysis. Typically,

a space is represented by locations defined around physical landforms, artifacts, or boundaries (e.g., Vásquez, 2016). In contrast, "places" are much more abstract, arising as they do out of repeatedly experiencing physical spaces, attending to how the self and others communicate about or treat those locations, and temporalizing the experience in memory and anticipatory perception. Places are just as real as a landscape, dwelling, or any other geographic location, though much less corporeal in nature (Adams, 2017). As Cresswell (2004) noted, places are evocative lenses for experiencing and interacting with a world that contains countless encountered spaces.

A wide range of conceptual and empirical approaches to studying the personal and social experience of place have been pursued, some of which have identified *place attachment* and *place identity* as significant mediating factors in conservation planning and environmental protection (e.g., Devine-Wright, 2013). On the one hand, place attachments may be relatively localized, often manifested as "a sense of place" and generally do not extend beyond spatially and temporally limited settings such as the town people call "home" or even a social venue they frequent. Agnew (2011) tells us a sense of place is something that organically evolves over time on a *particular* landscape given the social interactions that take place *there*. On the other hand, the extent to which people are wed to more molar landscapes types, or place identity (e.g., Clayton & Opotow, 2003), suggests that ongoing social constructions of space across the lifespan result in enduring, even neurological, associations between self-concepts and more generalized spatial perceptions (Lengen & Kistemann, 2012). Beyond specific settings, people tend to identify with larger geographies such as mountains, beaches, forests, or urban cityscapes. Taken as a unified construct, place attachment and place identity become what has been labeled a *sense of self-in-place* (e.g., Cantrill, 2011). It is when one's affective and cognitive beliefs about specific sites collide with self-defining memories and feelings for larger landscapes that the sense of self-in-place is aroused (cf., Milstein, Anguiano, Sandoval, Chen, & Dickenson, 2011).

The notion of place-based attachment is not restricted to Western conceptions regarding people and the landscapes they inhabit. Indeed, it may be heard even more poignantly in voices originating in traditional cultures. For example, Nicolosi and Corbett (2018) summarize the emotional impacts that follow the indigenous loss of place identities quite nicely:

> Among Inuit in Nunatsiavut, Canada, connection to the land was found to be at the heart of being Inuit, a part of identity and lifestyle that supports health and well-being (Willox et al., 2013). While deep respect, love, and commitment to and for the land among Inuit in Nunatsiavut was positively associated with concern for climate change, it also represented a deep emotional loss (Willox et al., 2013). Similarly, the loss of sea ice in Canadian Inuit communities also had negative impacts on health and disrupted place meanings and attachments for these communities (Durkalec et al. 2015).
>
> *(p.16)*

Clearly, substantial research and lived experience provide abundant evidence that anyone may be quite attached to particular places or generalized landscape types (e.g., Lewicka, 2011).

Although the visceral experience of physical spaces helps to foment emplaced identities, the role played by social interaction in galvanizing such heartfelt perceptions should not be underestimated. That is, place identity, place attachment, and a sense of self-in-place also grow out of and are molded by ongoing social discourse regarding the spaces people

encounter (Masuda & Garvin, 2006). Just as Wallace Stegner (1955) once noted, "A place is nothing in itself. It has no meaning, it can hardly be said to exist, except in terms of human perception, use and response" (p. 3). Thompson and Cantrill (2013) observed "geographic and social *spaces* are symbolically transformed into meaningful *places* through processes of human interaction across time" (p. 1). At the same time, human perception is more-or-less mediated by the socially constructed places people have in their minds regarding what to focus upon and how to interpret messaging patterns (e.g., Amiot, Sablonniere, Smith, & Smith, 2015). We talk about the meanings we have for valued locations and landscapes (e.g., "Man, I love this bar!" or "It's great to be back in the mountains again"). We forge alliances with others who share our feelings (e.g., "You and I are city kids."). We socially support our agency in everyday discourse (e.g., "We have to protect sacred waters." or "We must do something before our lands are lost forever."). And we acculturate ourselves into communities by sharing place-based narratives (e.g., "You should have seen this place in the 1960s!"). Thus, human discourse plays a significant role in the dramaturgy of place-based identities through shared geographic indexing, place naming, and storytelling (Cantrill, Budesky, & Burroughs, 2019). The omnipresent nature of place-based identities is perhaps especially evident in the context of environmental catastrophes which alter the fabric of survivors' landscape alliances.

## Interpersonal and social mediators of cataclysmic events

As various scholars (e.g., Binder, Scheufele, Brossard, & Gunther, 2011; Kahlor, Olson, Markman, & Wang, 2020) have observed, what constitutes "an environmental disaster," and the ensuing perception of threats to place-based identity is a social construction arising from the way in which people *talk* about risks as well as what they *think* about when being alerted to such threats. That is, thought and discourse reinforce one another, sometimes in surprising ways. For example, one of Fox, Magilligan, and Sneddon's (2016) respondents reflected a pro-development stance when noting "You kill the dam, you are killing a part of me" (p. 93). To such an individual, the removal of a human-induced barrier in a watershed—something that inherently once destroyed another's valued ecosystem—would be seen as anathema to their place in the world. In contrast, Ewalt and Cantrill's (2017) study focused on those who often lamented the impact of land development, as in "while [the trees] were there, you were there and when they were gone, you were gone. It's like you wake up and your [sic] gone…" (p. 113). Indeed, what makes an event a "disaster," *per se*, seems to be more a matter of how conditions are mutually constructed and impact one's self personally or the extent to which people identify with others who may be affected by the calamity.

The social and mediated milieu that frames perceptions of environmental catastrophe may also influence the extent to which the integrity of place-based identities changes over time. As individuals encounter interpersonal or mass-mediated accounts that signal threatening aspects in the environment, emerging social discourse (or the lack thereof) tends to progressively magnify or attenuate the perceived significance of an environmental risk (Pidgeon, Kasperson, & Slovic, 2003). Though interpersonal networks appear to be a primary staging ground in the formation of interpretations upon which subsequent amplification or attenuation of perceived risk takes place (e.g., "Our Elders tell us there is nothing to worry about." versus "Everybody is saying we need to seek higher ground now!"), what goes on mentally in response to discourse clearly matters more (e.g., Cantrill, 2011). Depending upon how much threatening issues and events are identified by media or significant others (who may be the gatekeepers of risk communications), a more-or-less involved public relies upon

prior experience to cognitively elaborate upon the subject and engage others in formal and informal settings. Thus, more inclusive communities come to view the situation as better or worse that it truly may be. Indeed, Bonaiuto, Alves, De Dominicis, and Petruccelli's (2016) research review of place attachment and agency associated with natural hazards reveals that the more attached people are to particular locations, the more likely they are to collectively underestimate risk-as-reported and the less likely they are to leave hearth, home, and (especially) the social ties that reinforce perceptions of self and place (cf., Devine-Wright & Quinn, 2021).

Building upon studies of risk appraisal and place attachment (e.g., Dandy, Horwitz, Campbell, Drake, & Leviston, 2019; De Dominicis, Fornara, Cancellieri, Twigger-Ross, & Bonaiuto, 2015), we suggest that the causal relationship between identity and place regarding the social amplification or attenuation of environmental risk may be reversed in times of cataclysmic upheaval. That is, environmental disasters—pending or present—either do or do not incite media accounts and interpersonal frenzies that, in turn, more-or-less make salient identifications with places and the sense that one is bound to *that* place. Seen from our vantage, the springboard of media discourse and social interaction propels feelings of threat to place-based identities thereby motivating self-protective action, even including denial or psychological reactance. In a prototypical amplification of risk scenario, media reports and interpersonal interactions produce heightened awareness of risk and threat to emplaced identities, which not only promotes more reporting and social discourse but also engages individual and collective action to mitigate the perceived risk. On the other hand, if the content of media representations and interpersonal interaction omits to focus upon or downplays the environmental risk, potential victims should not feel threatened or motivated to protect their place-based identities. Worse, still, would be a case where the media or social networks ignore, trivialize, or victim-blame those who would bear the brunt of a potential or manifest environmental catastrophe (Dreher & Voyer, 2015). In that case, place-based identities would be susceptible to what Gerbner and Gross (1976) termed "symbolic annihilation" and, similar to what others have called "discursive erasure" (e.g., Stibbe, 2014), anyone who might otherwise feel threatened would be marginalized. One likely outcome of such implicit vilification or ghosting would be heightened senses of loss and, perhaps, the development of a self-perpetuating, despair-reinforcing subaltern counter-discourse among affected parties (e.g., Burch, 2021; Fraser, 1990).

Yet questions linger: What happens when, as Dandy and associates (2019) explored, environmental change is so severe that those who once tenaciously tied their identities to places of the heart are forced to physically and/or psychologically relocate themselves elsewhere? As is increasingly the case with changes in the Earth's climate (not to mention the advent of regional war), how about disasters such as denuded islands, fire-ravaged landscapes, or the onslaught of prolonged drought that often force residents to flee and never to return? What of those who previously constructed a sense of self in places such as Love Canal, Chernobyl, Fukushima, or Paradise?

## Where do we go from here when "Here" is but a Memory?

We maintain there is a significant difference in the forces of agency associated with more-or-less voluntary migration versus those attending the relatively sudden occasion of compulsory refugee status where homelands vanish on a diasporic horizon (e.g., Singh & Basu, 2020). Something greater seems afloat when identities become permanently unmoored from places that will not be (re)placed in the pilothouse of the mind. The collective and individual stories

of such refugees are heartbreaking (e.g., Brown, 2018; Farbotko & Lazrus, 2012) and the psychological impacts can be devastating (e.g., Perkiss & Moerman, 2018; Rehling & Sigston, 2020; Scannell, Williams, Gifford, & Sarich, 2021). King and Eoin (2014) tell us "there is an existential component to this process: as places become 'thinned out' or non-existent, so too do identities rooted therein" (p. 206).

Although alternative models have been proposed to describe what happens to place-based identities in times of forced resettlement (e.g., Ertorer, 2014), it seems to us a more heuristic construct to use in such situations is that of *solastalgia*. Solastalgia is a relatively new concept representing intense, environmentally induced distress and is distinct from merely nostalgic melancholia to the extent solastalgia is the product of significant environmental changes in sharp contrast to deeply held place-based attachments. As Albrecht (2005) summarized:

> It is the pain experienced when there is recognition that the place where one resides and that one loves is under immediate assault (physical desolation). It is manifest in an attack on one's sense of place, in the erosion of the sense of belonging (identity) to a particular place and a feeling of distress (psychological desolation) about its transformation. It is an intense desire for the place where one is a resident to be maintained in a state that continues to give comfort or solace. Solastalgia is not about looking back to some golden past, nor is it about seeking another place as "home." It is the "lived experience" of the loss of the present as manifest in a feeling of dislocation; of being undermined by forces that destroy the potential for solace to be derived from the present.
>
> *(p. 45)*

More recently, Hechanova and Waelde (2017) went on to argue that solastalgia represents a "sense of desolation and loss of identity that an individual experiences as their familiar home environment changes, becomes uninhabitable, or hampers their livelihood" (p. 32). A landscape giving rise to mental places may be so degraded as to force the migratory urge. Yet the cognitive and affective ties to the "home" environment do not simply vanish over the horizon behind those who must leave a ruined place. Rather, environmental refugees embody physical and psychological diaspora, experience "root shock" (Fullilove, 2021, p. 174) and become dispossessed people, each of whom reflects what Carbaugh and Cerulli (2013) called "a self-without-its-discursive-place" (p. 17).

The distress occasioned by the loss of a place and subsequent migration also transcends cultural boundaries. Beyond research conducted in the United States and Australia (e.g., Eisenman, McCaffrey, Donatello, & Marshal, 2015; Ellis & Albrecht, 2017), the substance of solastalgia and its psychological impacts have been supported by studies conducted in the People's Republic of China (Tsai, 2018), Africa (Antabe et al., 2020; Tschakert, Tutu, & Alcaro, 2013) and Amazonia (Kapfhammer, 2012) as well (for a review, see: Galway, Beery, Jones-Casey, & Tasala, 2019). Thus, as with collective senses of selves-in-place, solastalgia is neither an affliction of modernity, as such, nor the Western world. That is, all humans seem susceptible to the debilitating effects of being forced to flee from the places that have become part of their identities and across an unknown physical and social milieu.

In times of environmental carnage and forced relocation, the same dynamic between place attachment and social discourse plays its role. Though difficult to articulate, those experiencing solastalgia also betray (dis)placed identities as they communicate to make sense out of their plight (e.g., Bodnar, 2018; Lertzman, 2013). Waks, Kocher, and Huntsinger (2018) provide one example of such discourse following a wildfire in the American West:

> I wasn't even sure how I was going to live here again. For me, it wasn't even that I lost all my stuff and the house, cuz I was so emotionally attached to the forest. We can rebuild, but we can't rebuild the forest. The biggest loss for my family, and me in particular, was emotional—the structures I could've cared less about, it was the trees that really broke my heart. Trees that I grew up with.
>
> *(p. 3)*

Or, put more succinctly, "We are who we are because of the trees." (Oakes, Ardoin, & Lambin, 2016, p. 8) or "It's gone ... It's not like our house burned. The entire world burned" (Bernstein, 2020, N. P.).

A similar contemporary example is cited by Wernick and Sutter (2019) in describing the plight of South American agriculturalists forced to flee the savagery of prolonged drought by trekking North, only to confront a wall of xenophobic resistance:

> And I think that's another thing people underestimate about the caravan or any migration story, really, when you hear about it. It has to be really bad for you to want to flee a problem. There's an incredible attachment to a sense of home and place, especially among people who are farmers, and who are attached to the land. It's a big deal to think about leaving, and that gives you a hint at like, how intense the situation is, for many farmers.
>
> *(N.P.)*

## Surviving in a (dis)placed world

It is reasonable to assume that, as climate change hurls the Earth toward a much warmer epoch, legions of people will experience the increased loss of homelands and place-based identities. The United Nations estimated that, in 2016 alone, roughly 24 million people were displaced due to climate-related disasters (International Organization for Migration, 2018). Oxfam International's (2019) analysis indicates that 2016 was not an outlier in that, over the past decade, an average of one person has had to flee her or his home every two seconds due to climatic catastrophes (cf., Sengupta, 2021). Xu, Kohler, Lenton, Svenning, & Scheffer's (2020) climate modeling predicts the worst is yet to come; by 2070, up to 3 billion people "are projected to be left outside the climate conditions that have served humanity well over the past 6,000 years" (p. 11350). Given the potentially devastating effects of solastalgia and associated multiplier-effects exacerbating deforestation and potable water depletion (e.g., Tarfere, 2018), environmental communication scholars would be wise to consider how those now at the forefront of anthropogenic upheaval discursively anticipate and deal with forced climate refugee status before even broader swaths of humanity are consigned to a global diaspora in order to adapt and survive (cf. Ferreira, 2020).

To engage solastalgia-oriented research as humanity approaches a global event horizon, perhaps the best place to start might be in the South Pacific where the impacts of climate change are already upon us (e.g., Charan, Raj, Chand, Joseph, & Singh, 2018), though other populations are certainly experiencing similar upheavals (e.g., McLeman & Gemenne, 2018). Both climate modeling and lived experience indicate it is in Greater Oceania where increases in ambient and ocean temperature, the severity of rainfall events, and sea level are already disrupting island ecosystems and forcing entire communities to relocate to more habitable locations (e.g., IPCC, 2013).

If, as we have argued, perceptions of place are indelibly linked to identity and the processing of communication, there is merit in examining how South Pacific islanders' talk

regarding feelings of solastalgia could implicate more effective strategies for helping poten-tial and actual climate change refugees deal with the effects of large-scale migration. For example, Luetz and Havea (2018) replicate the findings of others (e.g., Zackhras, Deeks, & Ellis, 2018) in observing that inhabitants of low-lying atolls cling to their homelands as long as they can while sea levels rise, fail to engage adaptive strategies, and complain about *ad hoc* or administratively planned out-migration to safer locations. As Albeck-Ripka's (2019) interviewees put it, "The land is us, and we are the island." and "…we'll go extinct, because we'll have nowhere to practice [our culture]" (N. P.). Narratives compiled by Arnold (2018) highlight the amplifying quality of media reports and interpersonal discourse associated with the climate refugee experience. One reading of Brulle and Norgaard's (2019) recent theorizing suggests that the prospect of a diasporic future (hence, potential solastalgia in our formulation) induces the threat of "cultural trauma" resulting in paralyzing social inertia, psychological reactance, and attempts to maintain existing place-based identities against all odds (cf., Sullivan & Young, 2020). Such might account for the tendency for island popu-lations to ignore government-sponsored mitigation or adaptation campaigns (cf., Michel, Matthieu, Pascal, & Yolaine, 2018; Singh, Charan, Kaur, Railoa, & Chand, 2020). We argue that the primary avenue for exploring this fight-or-flee dynamic would be to further inves-tigate the discursive experience of threatened or affected populations *in situ*.

Insofar as a South Pacific islanders' diaspora is already in the offing, it would also be in-structive to explore the motivational and symbolic constructions of those on the verge of mi-gration or actual displacement elsewhere. Brown and Perkins' (1992) described the manner in which displaced individuals anticipate and interact to reestablish place-based identities, actively seeking out relocation destinations that might dampen solastalgic trauma. As one of Luetz and Havea's (2018) Bougainville Island informants indicated,

> I would like to go someplace where the environment is similar to where I'm living and the way of living is the same so that I will feel that I did not lose my home but that my home is still here….
>
> *(p. 17)*

Although the perceptual and affective mechanism by which climate refugees attempt to embed previously ingrained identities into new-yet-familiar landscapes has yet to be fully fleshed out, Elkin and Keenan (2018) point to some of the problems associated with trying to replicate tenured identities elsewhere:

> In this newly constructed or modified built environment, it can be argued that design would likely only imitate the environmental and place specific attributes that ultimately serve as inferior substitutes. This is revealed in the urge to re-store, re-build and other supposed return state projections. To this end, perfect substitution is impossible because the priorities, preferences and identity of the newly relocated culture are inherently unequal and misaligned with those defining the predicate state.
>
> *(p. 153)*

Thus, we might expect that the discourse of any climate change diaspora would, ultimately, reflect the lingering effects of solastalgia (as well as, perhaps, discursive erasure) with many of its debilitating accoutrements. For example, in the South Pacific, existing migrations to more climate change-resilient atolls have already resulted in the loss of personal and commu-nity identities occasioning depression and suicide (e.g., Gibson, Barnett, Halsam, & Kaplan,

2020; Weir, Dovey, & Orcherton, 2016). Appreciating such narratives today would certainly help researchers to inform mental health professionals whom, in the not-too-distant future, will have to contend with ever-increasing climate-driven migrations around the globe.

In conclusion, we hope our analysis and argument here have demonstrated to the environmental communication community a range of scholarly and practical treasures to be found by digging into the myriad relationships that exist between place, identity, and the loss thereof. Much of the current climate change discourse is framed in terms of spatial losses (e.g., the loss of glacial waters, rising tidelands, desertification) and we often forget that those spaces directly impact *peopled* places in ruinous ways (J. P. Ewalt, personal communication, August 25, 2020). Surely, climate change is not the only reason people are forced to migrate to distant lands and solastalgia is but one of several conundrums refugees face (e.g., Albeck-Ripka, 2019). For example, in several situations, would-be migrants are unable to relocate due factors such as economics or geopolitics even if climate change is destroying their ability to subsist (Zickgraf, 2019). In such cases, solastalgic despair is utterly compounded by mortal environmental threats.

At the end of the day, we will all have to more-or-less contend with a warming Earth and each of us, in our own visceral turns and times, may witness the places of our personal sagas vanish, including vital elements of our selves-in-place. The American Southwest has grown more arid by the year while its East Coast braces for the drowning of metropolitan shorelines; the Arctic melts as the oceans acidify; global breadbaskets shrink. It is not alarmist to foresee a looming global diaspora. Many will have to relocate, and the resulting trauma may not be simply a case if singing along with "The Way We Were" in merely diasporic mourning since climate refugees may long for a perceptual homeland that is, in brutal fact, no longer *there*. Preparing for that grand migration, let us not be merely passive passer-byes along the dusty paths taking humanity somewhere else in the Anthropocene.

## Further reading

Devine-Wright, P., & Manzo, L. (Eds.) (2020). *Place attachment: Advances in theory, methods and applications*. New York: Routledge. An up-to-date reference focusing on people's attachments to place.

Filho, W. L. (Ed.) (2018). *Climate change impacts and adaptation strategies for coastal communities*. Cham, SUI: Springer International Publishing. A comprehensive collection of chapters focusing on sea level rise, especially in the South Pacific.

Hechanova, R., & Waelde, L. (2017). The influence of culture on disaster mental health and psychosocial support interventions in Southeast Asia. *Mental Health, Religion & Culture*, *20*, 31–44. A relatively recent article equating solastalgia with mental illness and human health.

McLeman, R., & Gemenne, F. (Eds.) (2018). *Routledge handbook of environmental displacement and migration*. New York: Routledge. This handbook provides a global overview of climate change-induced refugee movements.

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## PART V

# Conclusions

## Future trajectories of environment and communication

# 30

# BEYOND THE POST-POLITICAL ZEITGEIST 2.0

*Pieter Maeseele*

## Introduction

For the original chapter, I was invited by the editors of this volume to write a focused and incisive contribution on interesting new perspectives and emphases for potential future trajectories in the field of environment and communication. The perspectives and emphases I chose to advance, however, were not consistent with what is generally associated with "new", an overvalued label that immerses 21st-century public and scholarly discourse, and communication and media studies in particular (Murdock 2004). To the contrary, the chapter called for reinvigorating critical sociological concerns and approaches in research on environment and communication (see also Hansen 2011). Instead of calling for the analysis of specific understudied or "new" media initiatives or communication practices (such as Netflix, YouTube, or TikTok), innovative technologies (such as hydro power or carbon storage) or environmental risks (such as PFOS or PFAS), it called for a reorientation of research aims and questions towards the politics of media and communication in liberal democratic societies and the relationship between media(ted) discourse, power, and democratic politics. It presented an analytical framework for analyzing in what ways (mediated) discourse is found to facilitate or impede democratic debate and citizenship, and resultantly, on how to communicate more effectively from the perspective of democratic politics. Drawing from literature in political theory on agonistic democracy and post–politics, the chapter illustrated how both public and scholarly discourse[1] on the environment was found to be deeply characterized by the post-political zeitgeist that had swept through the West these last decades, with consensus and depoliticization as its fundamental logics. It discussed the work of an emergent Belgian school that was concerned with identifying symptoms of this "post-political condition" within discourses on the environment, before critiquing scholarly discourse in the field of environment and communication for showing similar symptoms. This revised chapter has updated this argument by integrating the concept of the "populist moment", as a product of the fundamental changes taking place in the global political context in recent years. Furthermore, it discusses how the risk conflicts perspective that was introduced in the original publication has developed into a framework of agonistic media pluralism, for analyzing what happens in the discursive construction of environmental issues into matters of public concern, and for enabling conclusions on the contribution of media(ted) discourses

to facilitating or impeding democratic debate and citizenship. The chapter concludes by discussing some examples of recent empirical case studies on mediated discourse about climate change, genetically modified crops and food, and the yellow vests movement.

## The post-political zeitgeist

### *From the post-political condition…*

The post-political zeitgeist refers to how the post–Cold War period had generally been approached as the arrival of a "post-ideological" era, characterized by the belief in a universal rational consensus, with experts reconciling conflicting interests and values through impartial procedures and technical knowledge (Fukuyama 1992; Giddens 1994). A particular school of political philosophers (Rancière 1998; Žižek 1999; Mouffe 2005) however criticized this conceptualization as embodying not a "post-ideological", but "post-political", or "post-democratic" condition, characterized by the de-politicizing nature of the politics of consensus. The post-political or post-democratic condition refers to a historical situation in which the essence of democratic politics, i.e. the confrontation of hegemonic political projects, was argued to have been abandoned in favor of an "apolitical" technocratic management of social, economic, and ecological matters within the framework of an "inevitable" hegemonic neo-liberal project and global market forces.

The literature on post-politics has its origins in post-foundational political theory (e.g. Marchart 2007; Wingenbach 2011). One of its central claims is that the democratic nature of a particular social order depends on whether its ideological foundations are recognized and made visible, so these are open to democratic discussion and contestation (see also Kenis 2015; Pepermans & Maeseele 2018). This implies that it is on the level of discourse or representation that "the political" can be made either visible or invisible. When a particular social phenomenon is discursively constructed as without conflict, division, and power, it is being de-politicized. Post-politics refers to a particular form of depoliticization where "the political" is transformed from a matter of ideological contestation to a matter of administration, and decision-making is presented as a question of expert knowledge instead of political position. Consequently, technocratic decision-making and market considerations come to substitute properly political debate and the notion of (political) conflict is reduced to bickering. Hence, a democratic struggle between alternative (e.g. economic, technological, or socio-ecological) futures beyond the existing socio-political status-quo is foreclosed.

Mouffe in particular (2005) has focused on how a "politics of consensus" works as a mechanism of exclusion for anyone who disagrees by ridiculing them as radicals or extremists by means of discursive strategies of *moralization* and *rationalization*. This discursive intervention not only denies that any form of consensus is always based on acts of exclusion, entailing the *naturalization* of particular power relations. It also implies that the us/them distinction is not defined in political terms, as democratic politics requires, but is replaced by the moral categories of "good" versus "evil", or neutralized by striving for a consensus reached by "rational" argumentation between "rational" experts. In the process, (political) adversaries are turned into enemies of the consensus. A politicizing discursive construction on the other hand (re-)defines a particular social phenomenon in terms of potential disagreement, division, and conflict, disrupting the "objectivity" of "neutral" and "apolitical" accounts, and creating the space for articulating dissenting discourses. In turn, this division might generate passions, which facilitate processes of political subjectification, as it becomes clear

that "something important is at stake (…) and people are challenged to find and elaborate their own position (Kenis & Barrat 2021: 9)", potentially furthering democratic citizenship.

## …to the populist moment?

Since the publication of the original volume in 2015, the global political context has changed remarkably. With the rise of far-right populism on the one hand and new social movements such as the *Gilets Jaunes*, *Black Lives Matter,* or *Fridays for Future* on the other, the post-ideological imaginary lost traction and hegemonic ideological formations such as globalization, free trade, and neoliberalism have been pushed out of their "comfortable post-political place within which we would all agree (Kenis 2021: 137)". In response, Mouffe (2018:12) has identified the current conjuncture as a "populist moment" which is characterized by "the expression of a variety of resistances to the political and economic transformations seen during the years of [post-politics and] neoliberal hegemony". A variety of anti-establishment movements has come forward in which people reclaim their voice and make demands regarding popular sovereignty and equality. This "populist moment" signifies a return of "the political" in the heart of public debate and brings forward new questions, such as: what are the challenges represented by the populist moment? Who succeeds in seizing it? And how exactly are resistances against post-politics and post-democracy articulated, what political frontiers are being drawn? And finally, are they being drawn to construct a more or less democratic order?

At the same time, there have also been important developments in environmental/climate politics. On a policy level, the European Commission has put forward the "European Green Deal" in an effort at mainstreaming ecological concerns across different policymaking spheres, the United States has come back into the fold of the Paris Agreement with the election of Joe Biden, and China is leading the world in terms of renewable energy capacity. Many local, national, and supranational governments have made climate emergency declarations, emphasizing the urgency of the issue and recognizing their role in tackling it. Furthermore, new social movements such as *Fridays for Future* and *Extinction Rebellion* have come forward with new forms of civil disobedience. The *Gilets Jaunes* in particular have made clear that the social and ecological question cannot be disentangled. And the global pandemic has at the same time made existing inequalities worse and highlighted the crisis of neoliberalism with large-scale government programs and stimulus packages set up to buttress its economic implications. Although these events are still relatively recent, the editorial of a special issue in *Politics and Governance* (2021) makes clear that they bring the question forward whether these discourses and spaces for engagement signify a radical new climate politics or rather "the continuation of business as usual" (Davies et al. 2021: 2)?

While this chapter will not be able to provide an answer to this question because of the relatively recent nature of these events, the aim of this revised version is to provide an update on how theories on post-politics and politicization have been applied in the literature on environmental discourse and how a set of tools can be derived from it that will be able to provide an answer in the future.

## Post-politics and environmental discourse

Whereas the 2015 chapter spoke of an emerging literature that had been concerned with identifying symptoms of the post-political condition within discourses on the environment, today we can speak of a particular school *in* or perspective *on* environmental discourse and politics.

Working in fields as disparate as human geography, political theory, science and technology studies, and media and communication studies, scholars are found to draw on insights from agonistic democracy and post-politics to criticize and reflect on environmental discourse and politics (e.g. Swyngedouw 2010; Goeminne 2012; Machin 2013; Kenis & Lievens 2015; Kakenmaster 2019). Yves Pepermans and Maeseele (2016) have characterized this school as the "critical debate" perspective that problematizes the post-political nature of the dominant "consensus-building" perspective. While the latter generally calls for *depoliticizing* communication strategies that foster social consensus and public engagement, the former advocates the *politicization* of environmental discourse to revive democratic debate and citizenship.

In the following paragraph, we discuss some seminal studies in human geography, political theory, and science and technology studies that have been concerned with identifying symptoms of the post-political condition, or more recently the populist moment, within discourses on the environment. We conclude with a summary of the primary discursive characteristics that these studies have uncovered.

### *The post-political environmental consensus?*

Environmental geographer Swyngedouw (2007, 2010) has been a leading figure in this regard arguing how discourses on sustainability, nature, and the environment have served as a key arena for the configuration, entrenchment, and consolidation of the post-political condition. He primarily takes aim at the singular view of Nature as an harmonious equilibrium underlying existing discourses on sustainability. This (predefined consensual) concept of Nature turns sustainability into an empty signifier and reduces the politics of sustainability to a negotiation about the technomanagerial fixes at our disposal to "save" nature from current "unsustainable" paths: in other words, to retrofit nature to an apparently benign former status-quo. By concealing the competing imaginations mobilized by various social actors, this idea of nature precludes democratic debate about the kind of nature we would like to inhabit and how this can be achieved, since it inhibits the articulation of alternative socio-ecological futures beyond the liberal-capitalist order. Swyngedouw calls for turning the question of sustainability (and nature and environment) into a question of democracy, by creating spaces for the recognition *and* cultivation of conflict about the naming and trajectories of competing socio-environmental futures.

When it comes to climate change discourse in specific, Swyngedouw (2010) aims at its consensual presentation and mainstreaming as the struggle to stabilize rising $CO_2$ concentrations in terms of a global humanitarian cause. He argues how this consensual framing is sustained by apocalyptic imaginaries and ecologies of fear, a particular science-politics short-circuiting procedure and the reification and commodification of $CO_2$. In these processes, scientific expertise is put forward as the only legitimate foundation for policy-making, which is narrowed down to an issue of rationality claims. Furthermore, the framing of climate change in terms of a struggle of "us" versus "$CO_2$" represents climate change as a universalizing and socially homogenizing threat to humanity and externalizes and objectifies $CO_2$ as the enemy. Since this disavows social conflicts and antagonisms, obfuscates structural inequalities, and eliminates any space for dissent, these de-politicizing processes preclude democratic debate since climate change is disassociated from alternative political programs or socio-ecological futures from which to choose, while constructed as remarkably fit for technomanagerial machinery.

Physicist and Science and Technology Studies (STS)-scholar Goeminne (2010, 2012) elaborates Swyngedouw's arguments by focusing on how the consensual focus on the

scientifically registered level of CO2 emissions in UN climate politics[2] sustains a techno-scientific and market-oriented framing of climate change, which naturalizes the neo-liberal foundations of the Western economic development paradigm and conceals the political question of which society we want to live in. In this scientization of environmental discourse (and resultantly, policy), Goeminne identifies two accumulative levels in which particular forms of objectivity are constructed in terms of separating internalities from externalities, determining who and what is to be taken into account.

First, in addition to narrowing the potential range of dispute to "controversies between believers and non-believers … regarding the validity of the answers science provides" (2010: 212), this scientization brings in its wake the nature/society (ontologically) and fact/value (epistemologically) dichotomies. This results in the creation of a discursive space in which the (epistemic) superiority of rational decision-making (legitimized by the authoritarian status of science and the efficiency of technological developments) is put against the (epistemically-vacuous) inferiority of political judgment. The claim for rational decision-making in "consensual" climate policy-making therefore functions as an exclusionary mechanism for anyone questioning the (neo-liberal) alliance between science and policy.

Second, these dichotomies can only be overcome by starting from a constructivist rather than representational account of science (which is based on the alleged universal and non-exclusive character of scientific knowledge), since the recognition of science as a situationist, compositionist practice reveals the political dimension of scientific representation, in terms of the separation of internalities from externalities: in other words, dividing between what is taken into account and what is not in the construction of scientific knowledge. Goeminne thus calls for shifting the focus from "a dispute over matters of fact in terms of true and false to a struggle for matters of concern in terms of internalities and externalities" (212), since this opens the discursive space for a political struggle over what to be concerned about. Only then, the conditions are fulfilled to revive the environment, and the climate in specific, "as a matter of genuine political concern that is open to struggle and contestation between alternative visions of society, in this way constituting an essential component of social change" (213).

Elaborating these analyses, political ecologist Kenis and philosopher Lievens (2012, 2014) have identified a discursive shift with the rise of the Green Economy as a hegemonic project. Responding to what they identify as "the quantum leap" in ecological awareness during the last decade and a half, following Al Gore's *Inconvenient Truth* (2006) and the hype surrounding the climate summit in Copenhagen (2009), this project calls for the mobilization of market mechanisms and capitalism's innovative nature for making the transition to sustainability, based on (i) technomanagerial innovation,[3] (ii) sustainable entrepreneurship (i.e. corporate social responsibility), and (iii) sustainable consumption (i.e. individual behavior change). While the articulation and hegemonization of this project have initially been led by international institutions, governments, corporations, think tanks, and banks, its success is based on (a discourse of all-round) collaboration of environmental NGOs and green parties. The Green Economy project aims to incorporate environmental protest and turn it into a new regime for capital accumulation, therefore Kenis and Lievens equate green economy to green capitalism, and link it to earlier discourses of ecological modernization, transition management, and people planet profit. The authors argue how the success of this project depends on the all-round collaboration between former antagonists against a common enemy (CO2), which in turn depends on active processes of de-politicization, which, they argue, the ecological issue lends itself more easily to for the following reasons: (i) the existing post-political context, (ii) the lack of a clear emancipatory actor (sustaining discourses

of all-round cooperation, dialogue, and consensus), (iii) the technical complexity of the problem and proposed solutions such as emissions trading, (iv) the conservative nature of the singular view of nature, (v) a specific framing of climate in change primarily emphasizing the urgency, scale, and nature of the threat, which favors pragmatic short-term solutions.

But more importantly, this discourse of all-round collaboration is to a significant degree sustained by the articulation of an antagonistic political relation towards those groups that deny the existence of a scientific consensus on the nature of climate change. With the aim of delegitimizing any fundamental government regulations or public interventions, this coalition of fossil fuel capitalists and climate skeptics contests and politicizes the epistemic level, resulting into a scientific non-debate replacing a proper political debate. However, what this latter coalition as well as the advocates of the Green Economy project have in common is an instrumentalization of science, reducing policy-making to a matter of rationality claims, with profound de-politicization as a result: the reduction of climate change to an epistemic debate conceals the political positions underlying scientific positions and precludes a democratic debate between alternative futures beyond the existing socio-political status-quo. Therefore Kenis and Lievens argue how the re-politicization of the environment and the climate will involve a two-fold struggle: (i) the recognition of politico-ideological conflict as legitimate by opening up spaces of contestation and dissent, and (ii) the articulation of alternative futures to the Green Economy project.

In addition to these Belgian authors, British political theorist Machin (2013) has argued how only a radical democratic approach will allow to reinvigorate the politics of climate change and produce the collective action needed to address climate change. She takes aim at what she puts forward as four dominant approaches for failing to facilitate any conclusive decision-making, which she attributes to their common goal of inclusive agreement and rational discussion: (i) the techno-economic approach, based on technology and markets, (ii) the ethical-individual approach, based on developing a good conscience, (iii) the green republican approach, based on the assertion of a common good by responsible citizens, and (iv) the deliberative democratic approach, based on the transcendence of disagreement through rational discussion and mutual understanding. On the other hand, she argues how only the celebration and encouragement of disagreement results into a real choice between real alternatives, fostering democratic debate and citizenship, and creating the conditions for collective as well as decisive action. In that respect, she calls for the recognition of "nature" and "climate" as *political* categories constructed within particular socio-cultural imaginaries. A discursive construction of climate change in terms of an exclusionary scientific consensus on the other hand impedes democratic citizenship, since it encourages either political apathy by alienating people from owning the issue or polarization between acceptance and denial.

In their analysis of whether the "European Green Deal (EGD)" signifies a transformational legislative roadmap or rather the continuation of business as usual, Samper et al. (2021) come to the conclusion that a distinction needs to be made between discourse on the one hand and strategy on the other. They find that the discourse has indeed shifted in many areas from climate politics as a strictly technocratic exercise involving market-based environmental policy instruments to address emissions and energy sources (with humankind as its political subject), to climate politics as a means of addressing the unequal economic and socio-cultural arrangements at the root of the problem (with a plurality of political subjects). However, when it comes to strategy, the EGD is not found to incorporate the necessary changes, instead choosing to continue existing policies in most areas while increasing goals and measures to a cross-sectoral level. The EGD is therefore criticized for extending "the neoliberal hegemonic formation within European climate politics (Samper et al. 2021: 14)".

Kenis (2021) comes to a somewhat similar conclusion in her analysis of the *School Strikes for Climate* in Belgium: at first, the message and tactics of the movement clearly represented a break with the hegemonic technocratic approach, as the act of skipping school represents a choice for political pressure over more education or science. With the gradual broadening of the movement because of its success, the initial intergenerational conflict fault line evaporated into a homogenized one, and a choice is made for a strategic de-politicization: the rather radical measures are presented as "neutral" and based only on "scientific facts". Kenis concludes that the movement fails to seize the populist moment this way, instead attempting to "revitalise a lost post-political condition" (Kenis 2021: 6) and leaving room for oppositional forces and mainstream voices to recuperate and neutralize the movement's demands and stick to business as usual.

## *The return of the political?*

Authors such as Swyngedouw (2007, 2010), Goeminne (2010, 2012), Kenis and Lievens (2012, 2015), and Machin (2013) have identified the following characteristics of the post-political condition in discourses on the environment: first, the de-politicizing nature of the politics of consensus precludes debate on the meaning(s) of the environment and resultantly on the articulation of alternative (environmental, technological, etc.) futures, by concealing the competing imaginations mobilized by social actors. This naturalizes the existing socio-political status-quo and neo-liberal foundations of the Western economic development paradigm in specific and reduces the politics of the environment to a negotiation about potential technomanagerial fixes within this framework. Second, a rationalization of politics is sustained by a focus on the epistemic level and the assumption that the politics of the environment is a matter of translating a scientific consensus into a political consensus, thereby reducing policy-making to a matter of rationality claims. Third, a moralization of politics is sustained by framing the environmental question as a global humanitarian threat, based on processes of universalization and social homogenization and the externalization and objectification of the problem. These processes of rationalization and moralization are deeply characterized by mechanisms of exclusion, since those actors and demands that either disagrees with the scientific consensus or with framing climate change as an epistemic matter or a global humanitarian threat are stigmatized as enemies of the consensus. Fourth, by foreclosing the space for politico–ideological conflict, these processes result in precluding a democratic debate between alternative futures and in stifling democratic citizenship, since people are turned into passive spectators and not active participants in the articulation and shaping of alternative futures.

More recently, authors such as Samper et al. (2021) and Kenis (2021) identified a change in the discursive construction of climate change, away from hegemonic technomanagerial representations to more politicizing ones, but eventually came to the conclusion that these changes did not signify a radical new climate politics, but rather a continuation of business as usual.

## Environment and communication

## *Analytical perspectives*

The original chapter discussed how a more sociological approach had been developing next to the traditional science- and media-centric approach in the field of science and environment communication, with which the meaning-making practices in discourses regarding

science and the environment have become a central point of concern (see also Maeseele 2013). By starting from an assumption of communication practices as indefinite articulations of meaning, this sociological approach creates the discursive space for acknowledging and registering politico-ideological conflict or its denial.

I emphasized how it starts by recognizing the politico-ideological struggle in scholarly discourse itself, in terms of the theoretical approaches being used, as this is where the potential value of mediated discourse is determined, before being able to draw conclusions on the politico-ideological nature of mediated discourse itself. Because of its theoretical assumptions regarding science and society, the traditional model is not only incapable of recognizing the political nature of discourses on science and the environment, quite to the contrary, it serves to actively delegitimize the potential for politico-ideological struggle by shifting the site of struggle from the political to the epistemic level.

At the same time, I argued how research starting from more sociological approaches also needs to avoid the post-political trap, by exceeding a non-committal focus on meaning-making processes underlying media(ted) discourses, and accommodate research designs to function as spaces for conflict and dissent to be expressed and registered. As a case in point, the existing research literature on media and climate change was found to primarily evaluate mediated discourse on the extent to which it either contributes to communicating a scientific consensus or to achieving a social consensus (e.g. Pepermans & Maeseele 2014). This focus on an epistemic framing of climate change and the underlying desire for consensus reveals how the concerned theoretical or analytical frameworks are not only incapable of recognizing or addressing these processes, but simultaneously contribute to them: in other words, their specific conceptual and empirical choices not only actively contribute to the de-politicization of climate change, but actually presume that (an "unjustified") politicization is the problem to overcome.

Two publications were presented that did succeed in exceeding these pitfalls by integrating insights from agonistic democratic theory. In their edited volume *Climate change politics. Communication and public engagement*, Carvalho and Peterson (2012) start from the observation that citizen engagement in climate change politics is remarkably low, therefore the various chapters investigate in what ways communication could be able to contribute to a transformation of politics. They identify three modes of public engagement, based on different underlying views of climate change communication and politics: (i) social marketing, (ii) public participation, and (iii) agonistic pluralism. In their own words:

> Whereas social marketing and formal public participation are top-down managerial practices, citizen-led political participation is initiated from the bottom-up. Engagement starts with citizens who see faults in the ways formal political institutions deal with climate change and advance alternative forms of governance, whether through proposals for different governmental policies or through social and economic changes. This involves dissent over alternative political projects. The [agonistic pluralism] mode of engagement cultivates political conflict and rejects the viability of consensus between opposing viewpoints.
>
> *(Carvalho & Peterson 2012: 12)*

The impact of the first two approaches is seen to be limited in challenging the hegemonic technomanagerial approach to climate change: the social marketing approach individualizes responsibility and addresses people as consumers, thereby reducing the political realm to lifestyle choices, and the public participation approach often functions as an exclusionary

legitimation tool and top-down approach to the production of consensus. The agonistic pluralist approach on the other hand is seen as conducive to helping to transform the socio-political status-quo. The three chapters covering this approach in the volume, subsequently focus on the role of art in questioning and subverting politically dominant discourses (Polli 2012), the role of alternative media in developing agonistic politics on climate change (Gunster 2012) and an analysis of the exclusion of voices and views of large parts of society from climate change politics and how to include them (Scandrett et al. 2012).

Lastly, Berglez and Olausson (2013) had published an empirical exploration of how the post-political condition of climate change was discursively established in a 2009 focus-group study with Swedish citizens, by focusing on the ideological nature of their discourses. The authors identified three features counteracting radical political discourse capable of challenging the socio-political status-quo: (i) emotional indifference when it comes to personal experiences of a changing climate, (ii) the fragmentation into various particular causes of climate change underlying the "belief" in climate science (and not market capitalism as such), and (iii) individual responsibility and behavior change. The authors conclude that only the recognition of market capitalism as the "singular Cause" of climate change, will enable the articulation of alternative socio-environmental futures.

However, neither of these publications was found to put forward an analytical framework on how to systematically identify processes of politicization and de-politicization in public discourse. Berglez and Olausson (2013: 2) recognize this deficit: "This process of post-politicalization is rather well theorized but has seldom been substantiated with empirical evidence; thus, there is a need for discourse analyses that are able to empirically explore the discursive elements that function as post-political building blocks".

### *Agonistic media pluralism*

In response to this call, I have done a conceptual/analytical intervention in the field myself with the "risk conflicts" perspective (Maeseele 2015a, 2015b; Maeseele et al. 2017). It called on media and communication studies scholars to avoid the post-political trap in their conceptual approaches to environment and communication by putting forward environmental issues as a type of *social conflict*[4] in late modern societies. This conceptual intervention constructs the environment as a potential site of conflict, division, power, and exclusion, making visible "the political". It is based on the post-foundational idea that social phenomena can only be understood by means of discourse or representation, which is always the provisional, contingent, and changeable result of power relations and struggles (Kenis & Lievens 2015: 25–26). The original idea for the concept of "risk conflicts" was to distinguish between scientific rationality claims, values, and material interests in conflicting risk definitions, thereby avoiding the discursive construction of a particular issue as a matter of science versus "special interests". Instead, such a discursive construction is recognized as an exclusionary mechanism aimed at making invisible what is really at stake: an ideological struggle between competing (socio-ecological or socio-environmental) trajectories, by revealing the competing sets of rationality claims, values, and interests underlying competing responses to uncertainty, and by relating these to underlying alternative visions of society.

This was followed by a methodological intervention in which I called for accommodating research designs to function as spaces for conflict and dissent to be registered and expressed (Maeseele & Raeijmaekers 2020). This framework of agonistic media pluralism entails the analysis of what happens in the discursive construction of environmental issues into matters of public concern (or not): are they framed as a struggle between alternative sustainable

futures or between right ("science" and "realism") and wrong ("politics" and "radicalism")? Particular attention is paid to which discursive strategies either open (i.e., "politicize" or "cultivate") or close ("depoliticize") the debate on underlying ideological disagreements. The literature on the depoliticization (or rather post-politicization) of environmental discourse and politics has revealed how discursive strategies of naturalization, moralization, and rationalization (and scientization and economization in particular) are key to this process. And here the question becomes around which fault lines discursive competition unfolds: human-nature relations, state-market relations, legitimate expressions of free speech, and so on. Only qualitative content analytic methods, such as discourse or framing analysis, allow for such a strong focus on (the contingent nature of) language use and its relationship with specific social, political, and cultural contexts. Furthermore, it reaffirmed the need "for reconnecting and reintegrating the traditional, but traditionally also relative distinct, three major foci of communication research on media and environmental issues" (Hansen 2011:8). This means that the traditional reflexive circuit between social actors, media(ted) discourses, and audience discourses not only remains as relevant as ever, but in fact appears as most promising to reveal the material needed to draw conclusions on the contribution of media(ted) discourses to facilitating or impeding democratic debate and citizenship.

In the following paragraphs, some examples are presented of empirical studies in which this analytical framework has been applied.

*Climate change*: an analysis of how two professional-commercialized, elite newspapers and one non-commercial, alternative news website discursively re-defined climate change in their reporting of four climate summits between 2000 and 2012 revealed the existence of three distinct discursive constructions (see Pepermans & Maeseele 2018). Although two of those were found to close the debate on underlying ideological disagreements by depoliticizing the issue of climate change, they did this by advocating fundamentally different policy approaches based on opposing values.

The first discursive construction "Techno-Optimism, Regulatory Skepticism" (re-)defined climate policy as an economic and technological issue, that should be tackled by market forces and technological fixes rather than multilateral, binding emission reduction targets. In the process, values of market liberalism, international competitiveness, and productivism are naturalized. It relies on discursive strategies of economization and scientization to distinguish between the "cost-effective", "realistic" and "technological" policy responses by responsible actors, such as business associations, from the "unaffordable", "unrealistic" and "political" policy responses by irresponsible actors, such as (European) politicians. These discursive strategies shield the respective policy demands, and the values upon which they are based, from contestation and democratic debate by shifting the site of struggle to a matter of right versus wrong.

The same goes for the second discursive construction "Consensus-Oriented, Regulatory Optimism" which argues for the opposite, namely, a binding multilateral agreement about anticipatory mitigation through the United Nations Framework Convention for Climate Change. This policy approach and its underlying egalitarian and ecologist values are shielded from contestation and discussion by relying on the entwined discursive strategies of moralization and scientization, in which the "moral" and "scientific" policy responses by responsible actors (such as climate scientists, environmental NGO's and developing countries) who contribute to such an agreement are distinguished from the "immoral" and "unscientific" responses by irresponsible actors who thwart such an agreement (such as climate deniers and fossil fuel lobbies). Climate policy is presented as a matter of moral and scientific consensus about what climate change is and what should be done about it.

Only "Policy Struggle, Climate Justice" opens the debate on underlying ideological disagreements by representing climate policy as the outcome of a political struggle between the ideological projects of the "green economy", "fossil fuel economy", and "climate justice". While it shares its policy approach and underlying values with "Consensus-Oriented, Regulatory Optimism", it facilitates democratic debate and citizenship by exposing the values, configurations of power, and mechanisms of exclusion underlying each of these ideological projects, and by expanding the scope for debate by presenting the choice between the green and fossil fuel economy projects as a false one, as both leave the structures of free-market capitalism and neoliberal globalization intact. Most interestingly, this discursive construction was found only in the reporting by the alternative news website and in the opinionated sections of one of the selected elite newspapers. This implies that the regular reporting of the selected traditional, commercial news media did not allow a democratic debate about alternative policy frameworks or the political projects upon which these are based.

*Genetically modified crops and food*: an analysis of mediated discourses about a direct action against a field trial of genetically modified potatoes in May 2011 revealed similar results (Maeseele et al. 2017). A first discursive construction was found to close the debate by presenting the technology and the field trial as part of an unavoidable scientific and economic development taking place in the public interest, any disruption of which is counterproductive. These discursive strategies of scientization and economization redefine the debate as a struggle between the organizers of the field trial, who are granted both epistemic and economic authority, and the protesters, who are stigmatized as violent radicals and fundamentalists. The technology and the trial are presented as a matter of scientific, economic, and social consensus about the desirability of genetically modified crops and food, and by extension, of large-scale industrial agricultural and food practices, the commercialization of scientific research, and an particular interpretation free speech that is restricted to the existent institutional decision–making process. In the process, values of productivism, market liberalism, and international competitiveness are naturalized. The site of struggle is shifted to a matter of right versus wrong, and democratic debate and citizenship about any alternative sustainable futures are precluded in favor of technocratic decision–making and market considerations.

This is opposed to a discursive construction in which the technology and the trial are (re-)defined as a deliberate social and political choice, based on the above values, rather than as part of an inevitable development or consensus. It legitimizes the political purpose and form of the direct action for provoking a debate on the desirability of genetically modified crops and food, the relation between science and society, and freedom of speech and research. It facilitates democratic debate and citizenship by exposing how the values, power relations, and exclusionary mechanisms underlying neoliberal capitalism shape the direction and practice of science, agriculture, economy, and democratic-institutional decision–making, and by expanding the scope for debate by considering alternative socio–ecological trajectories or politico–economic models.

Since this last discursive construction was only found on the alternative news site, this study allowed us to draw conclusions about the limits of the debate in commercial media, or put differently, the existence of "mainstream" frame of reference. The third discursive construction, which only featured in one of the newspapers, was found to cultivate debate about the desirability of the technology in terms of mobilizing concerns about the intertwining of business and universities. However, it limited its focus to problematizing the role of commercial interests in universities, rather than the prevailing politico-economic model and its policy principles. Second, it delegitimized the direct action as violent and undemocratic,

thereby confirming the existence of chat has been referred to as the protest paradigm in social movement literature: an implicit model of social control mechanisms in commercial media for protest actions that potentially challenge the balance of power.

*Yellow vests*: a totally different picture was found in the analysis of the reporting of the yellow vests movement in 2018 (Peeters & Maeseele 2021). While an expected fuel tax increase by the French government as part of its climate policy was initially considered a motivating factor, the movement quickly grew into a symbol of worldwide protest against social inequality and injustice. Mediated discourse in both newspapers and alternative news sites was clearly embedded within the earlier identified "populist moment": both the yellow vests' discursive interventions themselves and interpretations thereof in news articles, opinion pieces, and editorials were characterized not only by populist logic, but also by discussions of social inequality and political isolation as drivers of discontent and contention. This discursive convergence across the selected media was subsequently explained and evaluated differently by three discursive constructions. So unlike the previous examples, the newspapers articulate "a variety of resistance" (Mouffe 2018: 12) rather than a "mainstream" frame of reference.

The discursive construction "Neoliberalism under siege" presents social and climate justice as two sides of the same coin. It exposes globalization's underlying neoliberal logics for their destabilizing effects on equality and democracy and interprets the yellow vests' demands as a call for fundamentally transforming the prevailing politico-economic model.

"Ethnocultural nationalism" shares a mutual understanding of what is at stake and similarly exposes voices that take a stance against the politico-economic status quo, but does so by holding different actors and values accountable for it and by advocating an alternative vision of society: it (re-)constructs the yellow vests as an object of ethnocultural alienation and legitimizes their demands as a rightful call to restore national sovereignty in the face of the political elite's cosmopolitan disdain, "open borders" migration policies and free trade treaties. While "ethnocultural nationalism" relies on a discursive strategy of moralization to stigmatize anyone holding different values, "neoliberalism under siege" relies on a strategy of politicization by directing its opposition towards a particular ideological project. In other words, the former closes a debate on underlying ideological disagreements, while the latter enables one.

For "The end of the month versus the end of the world" on the other hand, a necessary and efficacious climate policy is what at stake, the development and implementation of which is part of an inevitable process that serves the public interest. Relying on a discursive strategy of rationalization, it puts forward any disruption thereof as counterproductive and criticizes the demands of those who disagree as based on false assumptions and as ignorant towards the urgency and efficacy of the climate measures at stake. In other words, it is characterized by a conserving stance that positions the status-quo and the prevailing politico-economic model as the inevitable way forward rather than contesting it.

# Notes

1  In this chapter, the concept of academic discourse is used to refer to scholarly discourses, while public discourse is used to refer to discourses circulating in the public sphere, such as media(ted) discourses, citizen discourses, strategic communication by organizations, etc.
2  While the IPCC reports have played a vital role in framing climate change in terms of a scientific battle against CO2-emissions (IPCC reports), the annual climate summits have narrowed the politics of climate change to debates on particular technologies and market mechanisms
3  Geo-engineering, carbon capture, storage, nuclear power, biofuels, etc.

4   This is in line with how Mouffe's project has always been to extend the field of social conflict from an original focus on class struggle to including other struggles for emancipation, connected to the demands of new social movements such as the environmental or climate justice movements. The latter also includes advocating climate policies that take into account particular injustices suffered by frontline and vulnerable communities such as "indigenous peoples, communities of color, migrant communities, deindustrialized communities, depopulated rural communities, the poor, low-income workers, women, the elderly, the unhoused, people with disabilities, and youth" (Samper et al. 2021: 11).

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# 31

# SPEAKING TO THE HEART OF THE MATTER

## The emergence of a humanistic environmental communication

*Susanne C. Moser*

### Introduction

As the 21ˢᵗ-century advances, environmental crises are accelerating, the impacts of global environmental changes such as climate change have shifted to being lived-and-felt, every-day experiences, and increasingly devastating ones at that. Disasters are turning from being horrific but rare exceptions to all too "normal" life in a climate-altered world (NOAA 2021; WEF 2021). Cox (2007) placed the rise of the professional field of environmental communication since the early 1980s into the context of environmental risks and degradation, and – in the face of currently accelerating environmental challenges – charged the field to serve as an ethically motivated "crisis discipline."

  While this notion of a "crisis discipline" was welcomed by some and sincerely debated or even contested by others (e.g., Heath et al. 2007; Killingsworth 2007; Schwarze 2007; Senecah 2007), much of what has been written under the flag of "environmental communication" in the years since his clarion call has at least to some degree been motivated by the deep unease about environmental events, trends, and looming dangers. The now well-established subfield of climate change communication can serve as "Exhibit A" for this claim (e.g., Moser and Dilling 2007; Carvalho 2010; Priest 2016; Filho et al. 2017; Nisbet 2017; Armstrong et al. 2018; Bloomfield 2019; Boykoff 2011, 2019; Fessmann 2019; Corbett 2021). From this perspective, the practice of environmental communication for many is "instrumental:" it aims to inform or help mobilize a more effective societal response to these growing dangers. In turn, much of environmental communication research has aimed and become more adept at untangling the various aspects of the communication process in an effort to make it more effective. We have tracked changing perceptions and attitudes to better address our various audiences; we have identified and tested different framings, channels, messages, and messengers to reach those who might influence public and policy debates; and we have unearthed a range of influences on the communication process to render it more helpful, timely and influential. Even the more "constitutive" approach to environmental communication, which looks at communication as a symbolic act that helps humans place themselves vis-à-vis the other-than-human life world, can be read as an attempt to reckon with the human footprint on Earth. Over the nearly 40 years since the field's inception,

environmental communication has indeed matured significantly in doing all of this. With a well-established technical vernacular in place, a strong set of methodologies to examine communication efforts, and growing geographic coverage of investigations that enable comparative insights into the importance of culture, context, and communication practices, the field of environmental communication has become a sophisticated area of study and practice – progress and achievements to which the contributions in this updated Handbook pay tribute.

As environmental, human-made, and public health crises such as the COVID-19 pandemic become commonplace, and environmental communication has come into its own, a third trend is inescapable in our field and our lives: the ever-present internet, near-saturation of social media, and profound technological and political–economic changes in the media industry (Rainie 2013; The Pew Research Center 2019; Barthel et al. 2020). Communication has become faster, more distributed, more fragmented, and yet also more media-ted as a result. Dominick (2010) has well delineated the social implications of these developments, including the growing speed of "news", the lack of gatekeepers sorting through the abundance and overload of information, growing privacy concerns, the emergence of media use as escapism, and, disconcertingly, the growing social isolation despite virtual connectedness (for a visual commentary on just this effect of social media, see Cohen 2013). Environmental communication practice has fully embraced this trend. Yet, these developments in technology, research, and practice entail a certain degree of reification, of distancing from that which we study and do: humans trying – sometimes desperately – to connect with each other by way of words, images, gestures, and touch.

It is not unreasonable then to ask whether the environmental communication field may be losing touch with the very heart of communication at a crucial time. Despite all our communication options and opportunities, despite our skill and sophistication, are we still serving the deepest purpose of all communication, namely, to exchange ideas and information, to hear and be heard, to create understanding and foster connection among us (some would extend the circle beyond humans (Peterson et al. 2007)), and, ultimately, to ensure survival? This question becomes ever more important to ask of the kind of communication needed most as environmental changes, disasters, and continual degradation of our life world take on a global scale. In such a time, what is called for first and foremost is not persuasion, education, and deliberation (though none of these will lose in importance), but kind and compassionate human support. Not conversion but respect and dignity. Not a battle of the minds, but a meeting of the hearts.

In this chapter I argue that the two major trends introduced above – the increasing frequency of environmental crises and the pervasiveness of technology-based communication – open up a gap, a profound need, and an opportunity for an environmental communication that is oriented toward human welfare and connection. I call such an environmental communication "humanistic" and see it in fact as a growing direction in our field. In the section below, I begin by establishing how environmental crises are emerging in our collective experience. Next, I define and sketch the outlines of such a "humanistic" environmental communication, and then focus in on how it may serve a society increasingly in dire environmental straits. I will close with an appeal to both environmental communication researchers and practitioners to issue not just warnings and clarion calls to action but to partake in the restoration of our relationships to each other and between ourselves and the more-than-human world.

## A world changing darkly

Pick any year, and we can all now point to unprecedented, iconic climate disasters. Katrina, Sandy, Harvey, and Maria stood out among record-breaking hurricanes; the Camp Fire destroyed an entire town in California (Paradise); the multi-year drought in the American West caused havoc in forests and on farms and ranches; unprecedented heat extremes, floods, windstorms touched nearly every corner of the US. Almost every time, the news media and commentators declare these extreme events as "game changing", and, indeed, they have changed public awareness and opinions in undeniable ways (see ongoing tracking by the Yale Program for Climate Change Communication; most recently, Leiserowitz et al. 2021). Studies show lasting impacts not only on those directly affected, but on public and policy conversations in the US. The trend toward growing numbers of multi–billion dollar events over the past 30 years, most recently peaking in 2020 (NOAA 2021) (https://www.ncdc.noaa.gov/billions/time–series) hints at the growing economic and emotional toll these disasters take on affected populations.

And that is just the picture within the US. Elsewhere, the story is equally heart-breaking and disconcerting: the devastating wildfires in Australia; extensive and repeated flooding in East Africa and South East Asia after tropical cyclones/typhoons; deadly heatwaves in India, Pakistan, and Europe; the dramatic loss of sea ice in the Arctic; the extensive bleaching events destroying large swaths of coral reefs; persistent drought followed by locust outbreaks in Africa; the list goes on. Many of these events can now be attributed to climate change (Otto 2017; Diffenbaugh 2020; Swain et al. 2020).

Despite much progress, this work of attribution is still not settled science (e.g., Osaka and Bellamy 2020b), yet in the public mind, the barrage of directly or vicariously experienced disasters coalesces into a picture of a world increasingly perturbed, a world increasingly out of control (IPCC 2012; MunichRe 2017; Mooney and Dennis 2018). People's own, direct experience and the mediated communication about catastrophic events create a collective sense that something "strange" is going on in the world. Apocalypse, as Frederick Buell (2003) once put it, is becoming a way of life.

There is now substantial empirical evidence for this sense of unease, even of doom, in the public. People are "connecting the dots" between these extreme events – almost in spite of scientists' still cautious attempts to not link any single disaster directly to climate change. Researchers across the globe have found that people increasingly perceive changes in their local environment (e.g., Capstick et al. 2015; Legault et al. 2019; Leiserowitz et al. 2021); that extreme events heighten people's awareness and worry about climate change, and that the reverse is true as well (e.g., Fownes and Allred 2019). Researchers are also finding that in some, but not all instances, awareness or experience of extreme events heighten people's willingness to engage in preparedness measures and/or support adaptation and mitigation policies (e.g., Whitmarsh 2008; Zaalberg et al. 2009; Spence et al. 2011; Reser et al. 2012; Demski et al. 2017), and that direct experiences increase people's psychological distress (e.g., Coyle and Van Susteren 2011; The Climate Institute 2011; Moser 2013b; Beaglehole et al. 2018; Fullerton et al. 2019). At the same time, there is also continued "psychological distancing" from climate change observed among studied publics across the world, mechanisms that are both intra-psychically and socially reinforced (e.g., Norgaard 2011; Singh et al. 2017; Wang et al. 2019; Maiella et al. 2020). These seemingly contradictory findings suggest that people are grappling with strong and contradictory emotional responses to climate change (e.g., Chu and Yang 2019) and that they may be caught in a tense dilemma between the desire to avoid news of climate change (both current and projected worsening future conditions) and

the dawning realization of a climate reality that is pressing upon them in real time (Cramer 2008; Dickinson 2009; Pienaar 2011). The growing uncertainty (and maybe existential fears) evoked by extremes seems to reinforce people's preexisting, and strongly ideologically determined beliefs about climate change (Cutler 2015; Borrick and Rabe 2017; Cutler et al. 2019; Osaka and Bellamy 2020).

This emerging sense of climate change being here and maybe already worse than feared is – after decades of lack of awareness, indifference, and denial – significant as a sociopolitical and psychological phenomenon, and it is at the heart of the question of what kind of environmental communication is called for in this and the coming crisis time.

## The humanistic imperative of environmental communication in a world of crisis

### *What is meant by a "Humanistic" environmental communication?*

To answer this question, it helps to place some definitional boundaries around the word "humanistic." What stance, perspective, or approach does the adjective describe? The first two definitions offered below are of greatest interest for the purposes of this chapter, and the third is relevant to the topic of communication. Humanism is (1) a system of thought that rejects religious beliefs and centers on humans and their values, capacities, and worth;[1] (2) a deep concern with the interests, needs, values, as well as the dignity and welfare of humans; and (3) the study of the humanities, learning in the liberal arts (The Free Dictionary 2021). In short, a humanistic science – and practice – is centrally concerned with human experience, the whole of human subjectivity, and with the possibilities of the fulfillment of the human potential in whatever circumstances – social, economic, cultural, ecological, and even cosmological – people find themselves in (Kuhn 2001; Diaz-Laplante 2007).

The spirit of humanism that I wish to invoke here can be further specified by elements of what humanistic communications research has to offer. According to the Humanistic Communication Research Institute, research in this field aims to understand the *substance* (its weightiness and meaning), not just the *contents* of communication ("Gehalt… nicht Inhalt") (http://hcri.de/). It focuses on cultural values, paradigms, and belief systems, on ethics and on how individuals and groups construct their realities, meaning, and purpose, as well as on the function and responsible use of communication in social systems.

Even greater inspiration, however, for a relevant environmental communication in times of crisis comes from humanistic psychology. Humanistic psychology is fundamentally interested in the subjective human experience and normatively aims for human welfare. It seeks to support individuals in a process of "self-actualization", i.e. maturing into a conscious and empowered place of self-determination, in which people creatively realize their full potential. The humanistic approach in psychology emphasizes wholeness, free will, and empathy, and stresses the good in human beings. (Even so, many humanists fully embrace both the light and dark side of being human, the cruelty and love of which humans are capable.) Over the past half-century, humanistic psychology has moved from being narrowly focused on the individual to increasingly engage the question of how individual psychology is holistically embedded in, and mutually constitutive of, social, political, and environmental contexts and challenges (e.g., Michael 2000; Kuhn 2001; Diaz-Laplante 2007). There is a deeply emancipatory impulse at the root of humanistic psychology, and as such a radical desire for human liberation from both inner and outer bondage – a normative stance that enjoys good company with other empowerment-oriented "liberation" disciplines (Moser 2013a).

This focus on understanding human experience together with the desire to support human unfolding may at first seem counter-intuitive as a crucial focus for environmental communication. Yet that human experience is at the heart of living through a time that will be increasingly disrupted by environmental crises, surprises, and profound change. I see it therefore as a task of environmental communication to help understand such a time and make sense of it. The questions of who we are as humans and how we are to behave in the Anthropocene are at the core of the question of how we relate to "nature." An environmental communication field that wants to be relevant in the 21st century must take the advances in the Earth and sustainability sciences seriously, and thus take to heart that our human unfolding is deeply linked to the fate of the Earth (Chakrabarty 2009; Steffen et al. 2015; Lade et al. 2020)?

It is to these questions that a third understanding of the "humanistic" speaks, namely, the essential contributions from the humanities. Like them, a humanistic environmental communication must reflect back to us our past, present, and future, our actions and desires, our beliefs and illusions, our truths and deepest needs, our destructiveness and creativity, our brightest and darkest natures. It must make the future – however bright or dark – imaginable so as to inform actions in the present. Environmental communication and the humanities share an interest in culture, values, worldviews, and frames, in stories and other forms of artistic or culturally resonant expressions of the human-environment relationship. Like for the humanities, the raison d'être of a humanistic environmental communication lies not merely in dissecting analysis but in curative synthesis. A humanistic environmental communication can help foster the exchange between the two by embracing and seeking to more fully understand from both perspectives and express the human experience of living in a climate-altered world.

## How can a humanistic environmental communication serve a world in crisis?

As the world is experiencing more frequent crises and disruptions, it is time to ask what kind of environmental communication is needed. Elsewhere, I considered the tasks of environmental leaders in such a world, and asked which metaphors best described their future assignment: is it to "[b]e a steward, shepherd, arbiter, crisis manager, grief counselor, future builder?" (Moser 2012: 435). Regardless of which of this one is most drawn to,

> the leaders of the future will face not just new, more difficult, and more pervasive environmental challenges than past and present leaders do, but they will need to be adept in a range of psychological, social, and political skills to navigate the inevitable human crises that will precede, trigger, and follow environmental ones…. [They] will need to mentor, guide, and assist people in processing enormous losses, human distress, constant crises, and the seemingly endless need to remain engaged in the task of maintaining, restoring, and rebuilding—despite all setbacks—a viable planet, the only place the human species can call its home.
>
> *(Moser 2012: 435)*

Increasingly, they must tend to their own psychological needs for coping and processing the implications of climate change while supporting others equally facing the uncertainty of constant and accelerating change, as well as traumatic events and the demands of transformative change (Gilford et al. 2019; Moser 2020a). What then are some of the most immediate tasks of a humanistic environmental communication?[2]

## *Supporting those in crisis compassionately*

A first answer then to the question of how a more humanistic environmental communication – both as a field of research and as a field of practice – might serve a world of crisis is an instrumental, and therefore normative, one: to attend to the people and other-than-human members of our life world to help them cope with and adjust to a crisis-stricken world. This clearly adds a layer of meaning to the notion of a "crisis discipline." It is not just about speaking to an *environment in crisis*, and that something ought to be done about it, but it is about communicating meaningfully and supportively with those *living through crisis*. If communication is indeed both symbolic and material, about mirroring our world back to ourselves and constructing meaning, about self-expression and mutual understanding, about exchange of information and, ultimately, survival, then kind and supportive communication is essential to the ability – human and otherwise – to cope and adapt to a changing climate. In addition, environmental communicators must develop and become proficient in trauma-informed communication (Everett et al. 2020; Watson, Kearns and Moser 2020), an approach only beginning to be adopted in the environmental and climate communication arenas.

## *Truth telling without fear mongering*

Such compassionate support entails first and foremost helping others and ourselves to face the unfolding changes and crises. We have a long way to go to "getting real" about the legacy we have created for ourselves and all the co-inhabitants of this planet (Moser 2012). There is much truth telling to be done, and not simply in the way of cataloging the unfolding catastrophes, or blaming others or ourselves, but in the way, David Orr has so beautifully appealed to us:

> Telling the truth means that the people must be summoned to a level of extraordinary greatness appropriate to an extraordinarily dangerous time…. Telling the truth means that we will have to speak clearly about the causes of our failures that have led us to the brink of disaster…. Telling the truth means summoning people to a higher vision…
>
> *(Orr 2011a: 330–331)*

In fact, many have cautioned against fear appeals in climate communication, yet the advances in attribution science that make human causation of disastrous events ever clearer may inadvertently contribute to further polarization in public attitudes about climate change (Janković and Schultz 2017; Osaka and Bellamy 2020a). Thus, the art of communicating the truth must help us open to difficult information, be clearer about future prospects, analyze our situation more honestly, and bring us to a higher vision of ourselves, i.e. help us move up the humanistic ladder of self-actualization.

## *Expressing grief safely*

There will also be the endless need to create communal spaces in which our emotional experience of this world can be expressed safely (Cunsolo and Landman 2017; Westoby and McNamara 2019; Moser 2020a). While most Western cultures do not support much public display of grief, grieving our (recurring) losses we will all do. A humanistic environmental communication can serve a crucial social healing function in making space for it in how it portrays and supports this inevitable human experience (Cunsolo et al. 2020). In this way, it will help strengthen people's capacity to be in their own and with others' distress.

## *Visioning alternative futures*

To be clear, a humanistic environmental communication – in supporting the much-needed capacity to cope and adapt to change and crisis – is not to be construed as a handmaiden to silencing discontent. Instead, it will insist on the emancipatory, empowering impulse of the humanistic tradition (Bentz and O'Brien 2019). In seeking to support human evolution toward our highest possible self, it must seek, communicate, and engage in exploring new cultural ideals and aspirations that will lessen the destructive human impact on the planet. A humanistic environmental communication would be committed to serving social transformations toward a more sustainable existence on Earth (Moser 2019).

## *Fostering authentic hope*

To this end, as is increasingly well understood in climate change communication, more than "narrators of doom" are needed. To overcome feelings of overwhelm, anxiety, fear, and helplessness in the face of ongoing crises and seemingly insurmountable challenges, people need true hope (e.g., Pihkala 2018; Li and Munroe 2019; Marlon et al. 2019). Such hope can only be constructed from realistic goals, a clear or at least imaginable path, from doable tasks, and a meaningful role in addressing the problems at hand (Hicks et al. 2005; Fritze et al. 2008; Orr 2011b). Hope thrives where such arduous work is undertaken together (Moser 2007; Bonanno and et al. 2011). As the environmental journalist and blogger, David Roberts, so aptly put it, "When we ask for hope, then, I think we're […] asking for fellowship. The weight of climate change, like any weight, is easier to bear with others" (Roberts 2013).

## *Framing and urging on the transition*

A humanistic environmental communication must play a critical role in helping to hold that unavoidable tension between pain and hope, out of which forward movement will come. It must help build people's ability to hold the paradoxes of crisis and normality, of immediacy and long time horizons, of destruction and beauty, of change and durability (Moser 2019). Because between repeated crisis, there will be rebuilding; between death and destruction there will be birth and renewal; between fire, flood, and furious storms, there will be re-growth, rest, and recovery. But in the midst of crisis, understandably, we forget larger goals. In the face of setbacks, we will waver in our commitment. Thus, a humanistic environmental communication must help frame the transition from the truth of what is toward a different, more sustainable future. It must assist the rise and ongoing renewal of authentic hope. And because the weight of the work we must do is heavy and long, it must connect, more than divide us – back with each other, to our own humanity and deepest human nature, and to the more-than-human world around us.

## *Mirroring who we become along the journey*

A humanistic environmental communication must not be merely instrumental, however, in the sense of assisting us in alleviating immediate needs or mobilizing us to address the underlying causes of our distress. It must also be constitutive: helping us to understand this time, what is happening around and with us, and why; assisting us in reconsidering and re-imagining who we are in the Anthropocene and how we fit and belong into the larger Earth community (Berzonsky and Moser 2017).

As the Pulitzer Prize-winning poet, Jorie Graham, discovered in compiling an anthology of American poetry entitled *The Earth Took of Earth*, the Age of Discovery fundamentally changed seafaring people's perception of the geography of the known. Setting out from a familiar place to completely unknown lands manifested in a changed imagination, in remarkable shifts in language, turning *journeys* from searches within familiar territory into dreams "of finding an unknown *destination*" (Graham 1996). Curiously, as Sodré (2005: 71) explained, in the Arabic language, the word "Earth" shares the same linguistic root as the word "destiny." A humanistic environmental communication can help map and mirror this new human journey when not our rootedness in place and geography is at stake but our steady, or at best cyclical, experience of time, our deep sense of stability. Human destiny understood then not as a divinely, pre-determined end state, but as an actively and interactively created becoming, an unfolding that arises out of our inescapable interwovenness with an Earth on which everything is now in flux and unstable in ways unknown to the human species, this human journey into *terra quasi incognita* (Schellnhuber 2009) will be a truly worthy topic for charting in our field.

## Closing: the restorative power of a humanistic environmental communication

In this chapter, I have tried to build on the notion of environmental communication as a crisis discipline introduced by Cox (2007) by outlining what a humanistic emphasis in our field may look like, and how it may be increasingly needed if the world enters into perpetual "crisis mode." What seems to be needed most is direct tension with increasingly technologized forms of communication.

As I have tried to show, the notion of a humanistic environmental communication in a world of crisis is in some sense an extension of the field of crisis communication (e.g., Heath et al. 2007; Bonanno et al. 2011). At minimum, it must convey information about the crisis at hand, manage confusion, logistics, and public relations, and otherwise mobilize action to address them. But it must do far more than that as crises become our daily bread. As Seeger (2006) argued, environmental communication must "enhance the quality of public discourse and, in turn, the quality of public judgment regarding environmental matters" (p.96). Such judgment will be improved if we are not in fast-paced reactivity, but instead can find havens of calm in which to heal, recover, regroup and recommit to the rebuilding and transforming that requires thoughtful attention. What I have suggested here is that such havens are made from compassion, truth telling, grieving, visioning, true hope, supporting the movement toward a better future, and mirroring back to us our journey.

What we know from crisis communication is that to restore ourselves and our environment from the trauma experienced, we need to make sense of what is happening, we need to regain a sense of control and confidence, and reclaim our capacities to manage our lives. We will do so more easily if we can draw on or reestablish our social connections, and if at all possible, as well our sense of socio-ecological belonging, our sense of place. These conditions have been found repeatedly to aid in individual and community resilience (Bonanno et al. 2011; Fresque-Baxter and Armitage 2012; Everett et al. 2020; Quinn et al. 2020). A humanistic environmental communication, fundamentally driven by a desire to provide solace in a time of difficulty, a hope to foster understanding and create meaning in a disrupted environment, a wish to restore and sustain human welfare in the midst of rapid change, and a longing to support human emancipation and evolution in the

Anthropocene toward our highest selves, such a discipline and practice is not just a crisis discipline, but a restorative one.

It is in this notion of a restorative environmental communication that I return to the two strands of argument from which I began. One spoke to a kind of disassociation resulting from living in the cyberworld of technology-based communication, namely the dangers of people being engulfed in endless streams of information about the world and being seemingly connected with each other through digital media in virtual worlds yet becoming increasingly absent from the world of tacit experience and true social relations (for searing critiques and discussions of how such technologized communication changes us socially, psychologically and physiologically, see, e.g., Slater 2008; Carr 2010). As David Orr sharply observed,

> Our experience of an increasingly uniform and ugly world is being engineered and shrink-wrapped by recreation and software industries and pedaled back to us as 'fun' and 'information.' We've become a nation of television watchers, googlers, face bookers, text messengers, and twitterers, and it shows in the way we talk and what we talk about. More and more we speak as if we are voyeurs furtively peeking in on life, not active participants, moral agents, neighbors, friends, or engaged citizens.
>
> *(Orr 2011c: 8)*

Far from placing humanistic environmental communication on the Luddite end of the disciplinary spectrum, the appeal here is simply not to forget that which matters most in crisis, and even more so as crises become commonplace: real connection. While a tweet may help locate a survivor, a story intimately told might help us make sense amidst chaos. While a message board may give crucial information, a poem might restore sanity. While a blog may serve to air frustration, in-depth conversation and dialogue will help chart the difficult path forward. Thus, environmental communication, in remembering its shared etymological roots with words like making common, communion, sharing, and fellowship, must help restore human connection.

The other strand of argument took off from a description of the environmental conditions, particularly climate change and climate-driven disruptions, that will confront us with ever increasing incidences of extreme events and crises. The charge to environmental communication laid out in these pages is one of helping humans not just weather these coming storms and making sense of them, but assisting people in restoring our human-to-human and human-to-life world connections, and in the inevitable tension between loss and hope find our way toward a more sustainable expression of homo sapiens living on Earth (Berzonsky and Moser 2017). In this way, it can be a discipline that helps restore heart – *eros,* the innate desire for wholeness and connectedness – back to our everyday lives, each other, and our relationship to the more-than-human world.

## Notes

1  Note, however, that the issue of whether religious, transcendent experience and thought should be included in humanistic thinking is a continually debated topic and for many resolved toward an inclusive answer (Edwords 2008; Gordon 2003; Kuhn 2001). This will not be further discussed here, but is of relevance to the extent that in crises, humans not only seek explanations that frequently invoke the supra-natural ("acts of god"), but they also seek solace in one form or another of religious faith and in spiritual community. I thus include the consideration of the spiritual, religious and transcendent in the humanistic approach suggested here.

2  For elaborations and an application of these tasks, see Moser (forthcoming, 2020b, and 2019).

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