

THE ALIENATION OF HUMANS FROM NATURE:
MEDIA AND ENVIRONMENTAL DISCOURSE

BY

RICHARD J. DOHERTY

DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Communications
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2015

Urbana, Illinois

Doctoral Committee:

Research Professor Norman K. Denzin, Chair
Research Professor Emeritus Clifford Christians
Professor John Nerone
Professor Chad Raphael, Santa Clara University

ABSTRACT

Environmental problems are discouraging. Extensive and growing media consumption in the U.S. may be one of a few reasons. Communication constructs how people experience and understand nature, and corporate ownership of media influences the content (Beder, 2004). What does this discouragement look like in the news? Nature is often made the culprit that impinges on people identified as consumers. Added environmental responsibility for the “green” consumer can overwhelm them, and negative connotations associated with *environmentalist* suggest people avoid that label. And the odds seem to be in nature’s favor, when the individual is pitted against such forces as El Niño, and global warming. Technology, often the savior, produces additional conflict, problems, and cost. War metaphors and rhetoric in the fight over resources raises concerns over other uses. Polls show U.S. Americans becoming more fearful of environmental problems, but not changing their consumption patterns to help solve the problems. Environmental injustices can result from communication practices, even war and violence. All of these aspects point to power—who has authority, how they use it in dominant discourses, and what responses it produces. It is a social fact that people are discouraged about the environment.

Critical-cultural and media studies, provide ideas to address social and environmental problems through communication and provide three paths for understanding; critical theory addresses power and domination; symbolic interaction addresses meaning making from social interaction; and rhetoric, narrative and discourse address how ideas are used in stories to persuade people. These fields emerge from the work of the Chicago school on the interactions of society and mass media, and the Frankfurt school (with roots in Marxism) on the legitimacy which commercial media provide those in power that maintains inequalities and injustice. Critical analysis of media stories that relate to the environment, expose a bigger world than that described by those in power. Challenging that discourse can offer justice to those with little to no power or voice. It can also propose alternatives to alleviate inequality. The Chicago school’s sense of hope adds to this, in trying to make the world

better by research on how the world is represented, and how power is used to dominate people and nature.

Theory of environmental communication (Milstein, 2009) bridges three areas: the material-symbolic of real problems communicated through language; the mediated human-nature relationship that represents nature in particular ways; and applied activist theory which exposes problematic representations and offers better alternatives. Nature and environment are defined as symbolically complex ideas; nature, most often as all of the earth and beyond, but not including humans and their creations; whereas environment is seen as the surroundings that usually includes the creations of humans. Humans not acting as part of nature are a key piece of the problem and points to reconnecting humans to nature as an ethical solution to raise awareness of human caused environmental problems and the lack of action taken to alleviate them.

Prior research shows most environmental discourse is anthropocentric, based on industrial ideology, encourages consumption and domesticates and technologizes nature. Discourse on the environment occurs in all areas of culture but most prominently in news as events, ideas, and attitudes, and business as markets, products, and services. In news media, one of the most frequent elements is the weather report, but no research has shown how the weather discourse may be alienating viewers from nature. The few studies reveal the contexts and culture of TV weather production and how the media attention cycle work to depict nature-human relationships. On the business side, the recent development of the market for GPS navigation is a prime site for discourse about the earth and getting around the planet. Research on GPS related to communication deals with technical control and a militarization of consumer identity, but nothing about how the discourse might discourage the human relationship with nature. We know how news media positions nature, and how business promotes technology over nature. What is needed is a method to discern how the nature-human relationship discourages people.

The critique of media texts and power relations of people can best be accomplished with critical discourse analysis. For the studies in this research discourse-historical analysis (Reisigl and Wodak, 2009) is combined with an ontological assessment of the environmental discourse (Dryzek, 2013), and observations of contradictions in the texts (Hodge, 2012). Discourse-historical analysis focuses on the discourse (as topic, perspective, and argument), the text (as part of the discourse and the communication/language analyzed), and context (as multi-level setting made of the language, discourse, situation, history, and politics). The critical aspect unmasks hierarchy, dominance and control in relationships and shows how they are maintained, to expose opportunities to contest and reconfigure power.

The main questions of the studies are how do news and business depict the nature-human relationship, how do the power relationships involved create injustice and inequality, and how might the dominant discourse alienate humans from nature? The TV weather study looks at the importance of weather and how the weather report is a public service for citizens, embedded in a commercial news enterprise. The discourse comes out of the science of meteorology and television production, in a setting of advertising, market competition, technology, and journalistic norms. Morning forecasts from three top Boston stations during the Democratic National Convention of 2004 are analyzed and reveal a struggle or battle with nature. The moody weather makes people uncomfortable, need to protect themselves, or avoid it. Technical aspects and how the weather represents nature further distance people and make them reliant on the expert and their report. At a time when an improved understanding of the earth is needed, the analysis opens up the possibility of a more socially and ecologically just way of representing nature and the human relationship with it. The second study of discourse surrounding key points in the development of the consumer market for Global Positioning looks to print and on-line sources of business communication. With roots in the U. S. military, and steeped in the injustices of war, consumers adopted GPS as the way to navigate around town or around the world. Marketers, consumer guides and analysts tell stories about the nature-human

relationship to sell GPS to consumers. The study uses stories from around 1998 and 2008 when the market was developing and maturing respectively. The early stories engaged in practical criticism with a focus on the future, while the later stories leaned toward technical enthusiasm, comfort and convenience. Nature is depicted as slow and getting in the way of the technology and people are not complete without GPS. Some counter discourse comes from the specialty outdoor magazines that see how GPS detracts and distances users from the natural world. These articles are a step toward a more just and equal way of getting around the earth that doesn't rely on luxury gadgets that rely on the injustices of cheap labor, electronic waste, and the military.

The examples of people being discouraged with nature and the environment are everywhere. When news isn't about the latest environmental disaster, the underlying stories for the mostly urban citizens are formed by corporate and consumer culture aiming to sell products and make a profit. Media in these studies maintain the dominant social paradigm of economic growth, covering up environmental concerns and depict nature as a foe at a time when we need to understand and appreciate the earth. It is time to change the way media depict the human relationship with nature because it distances people with technology, it burdens people emotionally, it persuades them their efforts are futile, and dissuades people from engaging with nature through discourses of individual responsibility, scientific and economic progress, and the human nature-divide. Enhanced critical discourse analysis of media communication surrounding the environment offers hope of a more just and less dominating relationship with nature.

For my Asturian friend Fernando Montes—ecology professor, photographer and musician.

I finished this one for both of us!

ACKNOWLEDGEMENTS

There are many people who made this dissertation possible and deserve thanks, which I make public here. First and most importantly would be my husband Kevin G. Barnhurst, who turned me onto the academic world, supported me when necessary, smoothed my feathers and patted me when I got flustered, and helped me focus my many ideas on the nature-human relationship. Next would be everyone I worked with both in Chicago and Champaign-Urbana who thought it a good idea that I do a PhD and had to provide information and/or support. I must also acknowledge the earth as an inspirational being and something that I have to protect, as also making this possible.

Other people made this possible and enjoyable like my committee and advisors: Norm Denzin, John Nerone, Clifford Christians, Chad Raphael, and Ann Reisner, and I thank them ever so much for supporting me, pushing me and ignoring me when necessary. My ICR cohort from the Fall of 2008 and other students at UIC and UIUC who I could complain to and commiserate with and bounce ideas off. Folks from my new academic home in Leeds who provided space, work and friendship, and colleagues from ICA and IECA who provided much “you can do it” support. I also have to acknowledge my sister Lynne who made it possible for me to stay focused on my work when our mom needed care with an extra big thank you! Cindy Thomashow also deserves a thank you for helping me through my Master’s degree, and providing encouragement when needed. Things like coffee, alcohol, music, Google, Apple, and my band the Kingsnakes and friends in New England and Chicago, and the woods of New Hampshire also get a big nod of acknowledgement.

TABLE OF CONTENTS

CHAPTER 1. Introduction.....	I
Making Sense of It.....	5
What Do We Know?	11
Understanding What Is Going On.....	14
Why This Matters	19
CHAPTER 2. The Literature of Critical Discourse Analysis.....	21
Discourse	22
Media Text Analysis.....	25
The Discourse of Critical Discourse Analysis	27
Taking a Different Perspective	29
Boundary Pushers	31
Making Connections	32
Uncovering Depictions of the Nature-Human Relationship.....	33
CHAPTER 3. Methods for Studying the Question	35
Justice and Reflexivity.....	36
Conceptual Design and Research Planning	37
The Studies.....	42
The Analysis	46
CHAPTER 4. Weathercraft: Resisting Nature for Comfort	48
Finding a Niche in the Literature	49
Approach/Method	55
Findings	57
Critical discourse analysis	57
Visual Analysis	65
Understanding and Why It Matters.....	68

Conclusion.....	75
CHAPTER 5. GPS: Positioning Humans in Relation to Earth	78
Finding Power in Discourse.....	81
Critical Analysis of the Layers of GPS Discourse and Technology.....	84
Findings	88
Time Frame Discourses	90
Ontological Assessment	94
Contradictions and Counter Discourse.....	100
Discussion.....	103
Conclusion.....	111
CHAPTER 6. The Alienation of Humans from Nature.....	114
The Discourse of News, Business, and Nature.....	115
Power in the discourse to depict the nature-human relationship.....	117
Power Relations in the Discourse: Inequality and Injustice for Nature and Humans.....	121
Features of Discourse Contributing to Environmental “Discouragement”	122
References	129

CHAPTER 1. Introduction

People are alienated from nature and regularly discouraged by environmental problems. There are many reasons why this is. They include the mental and physical rapport with the earth, history of that relationship, and how the use of certain technologies hides the human bond with the earth. The U.S. public engages with an extraordinary amount of media, and the time spent with media keeps growing. It is well documented (Beder, 2004) how corporate ownership of news and other media sway and influence the content of public communication. This communication crafts and sustains ways of thinking and acting toward the earth in the form of a dominant discourse about nature and the environment. So, it is important to understand how communication plays a role to alienate people from nature and result in state of discouragement. In a media-centric world, what does alienation and discouragement look like?

“Earthweek: A diary of a planet” reports snippets of stories about whale deaths, eruption fears, tropical storms, a cholera outbreak, earthquakes and more. Two stories show nature as the culprit—“High winds fanned Nebraska's second-worst wildfire on record,” burning tens of thousands of hectares and killing one firefighter; and a late season snowstorm in Ohio and the Northeast has “disrupted transportation and closed schools and businesses” after “the heavy, wet snow snapped power lines in several states” (*Vancouver Sun*, March 20, 1999). After a food shortage and famine in North Korea, blamed first on floods, then drought, an observer proclaims, “it may already be too late for a country teetering on the brink of famine after two years of severe crop failure” (*The Globe and Mail*, August 11, 1997).

What are people to do? Identifying simply as consumers might seem like an easy job—to buy stuff. In the 1970s the idea of the “green consumer” began, complicating the consumer’s job. Take the article in the *Daily Yomiuri* (February 8, 1997) where a member of a green consumer group shares an example:

If you try to be truly environmentally conscious, you really have to carry a thermos to avoid buying canned drinks. That would really discourage ordinary people. Instead, for example, if you drink canned juice every day, you can try to reduce it to two days a week.

For the change, consumers need to adopt an environmental awareness and ethic, think about and assess the “greenness” of a product as well as waste and disposal issues, and change their behavior concerning it. The once simple job becomes complex, time consuming, and not so appealing.

Like the label “consumer,” the label “environmentalist” identifies a certain kind of person with particular values. An Op-Ed piece in the *Denver Post* (January 4, 1998) titled “Purity weakens greens” explores the political struggles of environmentalists in the United States at the time when Bill Clinton was elected president. The piece recounts how “since radicals dominated what was left of the movement, the strategies focused on radical aims. This disheartened environmentalists with more reasonable ideas and insulated the radical groups from feedback from moderate members.” Not fitting into an environmentalist identity or accepting its philosophy can dampen enthusiasm for movements working to build better human relationships with nature.

Instead the default seems to pit the individual against the earth, illustrated in a *New York Times* (August 8, 1999) article concerning a drought on the eastern seaboard. Policy solutions include mandatory restrictions on water use, and the Senate approving billions of dollars in aid to farmers. The cause of drought is “something as abstract and as forceful as fate,” more specifically La Niña phenomenon—the lower sea surface temperature in the Eastern Pacific. A high-pressure dome kept rain away from the area, and some people thought that global warming played a part. The article reports that, “against such a grand

array of forces, it can be hard to imagine how taking a shorter shower or watering the lawn less frequently makes a difference,” showing the futility of the situation.

Even technical efforts to solve problems produce more problems. On the other side of the continent, San Jose, California, had been dealing with too much treated water. An editorial in the *San Jose Mercury News* (September 2, 1997) talks about the drawbacks to prosperity, such as housing prices, traffic jams, and sewage. On top of all that, too much treated wastewater is going into a marsh that has a couple of endangered species. To reduce the input of cleaned-up water, the options are to stop building new homes (depressing the construction industry) or to implement regulations and incentives to install low flow toilets and efficient appliances in new and remodeled homes, increasing costs for the city and its homeowners.

Frustration over natural resources leads to strong rhetoric and concrete consequences on some issues, as highlighted in “Canada’s Plan to Outfish the U.S. Attacked” (*Globe and Mail*, August 15, 1997). The story employs a plethora of war metaphors and terminology that paints a dire picture of the fight over salmon. The sport fishing industry in British Columbia tries to stay out of the way of the conflict “because it does not want to foster bad publicity about endangered species in B.C. waters, which would discourage visitors” (*Globe and Mail*, August 15, 1997).

The problem of how to converse about problems extends to other movements, even issues of class and power. In a recent episode of *The Splendid Table* (October 31, 2014), food activists Jane Black and Brent Cunningham describe spending seven months in Huntington, West Virginia, where English celebrity chef Jamie Oliver was remaking the town’s food system. They say that people disengage when “the leaders in the food movement continue to batter us with grim statistics . . . it’s all the doom and gloom.” The leaders adopt a moral tone when trying to change how people eat. The target population—white, working class, city dwellers—don’t like to be talked to that way, the activists say. Who the messenger is, is as discouraging as the message.

Environmental problems can change behavior. Behavior can change in concrete ways, too. A Wilmington, N.C., *Morning Star* (May 31, 1997) report on a survey says, “when asked what natural disaster or environmental hazard would discourage them from visiting North Carolina . . . 28 percent brought up the threat of hurricanes.” U.S. Americans are the biggest over-consumers and makers of waste and pollution in the world. A *Mother Jones* (July 13, 2012) story reported that the National Geographic Society annual Greendex survey asked a thousand people in eighteen countries about their habits: “how much energy they use, how they get around, where their food comes from, what they think about environmental issues.” The United States unsurprisingly is at the bottom of the list, showing little mind to live more sustainably and little guilt about it. The 2014 survey includes a press release with the headline “Increased Fears About Environment, but Little Change in Consumer Behavior,” suggesting how people faced with environmental worry may fall into inaction (*National Geographic* online, September 26, 2014).

What other consequences flow from communication about nature and environmental problems? A story on “FEMA’s Formaldehyde Foul-Up” in the *New York Times* (February 15, 2008) tells how 140,000 trailers provided for people displaced by the flooding and destruction from Hurricane Katrina led to a man’s death. He had complained about the fumes and later died from them, and although people were moved away from the trailers, 35,000 were still occupied. “The truly vulnerable trailer population consists of former renters who are still living in FEMA parks—playgrounds, churchyards and the like—because they have no place to go.” The people most at risk—elderly, sick or poor—were the least able to deal with the situation. Injustice can result from environmental problems (Bullard, 1999), raising questions about the role communication plays in maintaining these inequalities.

War and violence can also grow out of environmental problems. The discovery of an aquifer under the Darfur region of Sudan (*New York Times*, July 22, 2007) points out the connections between ecological destruction and competition for resources between wealthy

elites and the poor rural and urban folks. Inequalities sustain and exacerbate the fighting, violence and injustice in the region. The reporting reinforces conflict and attitudes about Africans. The problems and the way they are communicated turn on questions of power—who has authority, how they use it, and what responses it produces. The power may be exercised by the use of technical solutions or how different kinds of rewards and disincentives are employed. There may also be legal or stronger action needed or used in these expressions of power.

No wonder people find environmental problems discouraging. Beyond the news reports in the media there are surveys and interviews that reveal it. Environmentalists and academics talk about it and even students in environmental communication classes mention it. The feeling is widespread.

Making Sense of It

Critical/cultural studies take a holistic approach appropriate to a large problem like this one. Media studies is also important because of the ubiquity and diversity of media in the Western world and because most people spend a lot of time with media and learn from media much of what they know about nature. Environmental communication, a sub-field of communication, focuses on how people communicate about the relationship between people and the natural world. Critical and media studies provide three approaches for understanding environmental communication. Critical theory can help make sense of the transforming human circumstances that enslave people and non-humans. Symbolic interaction can help make sense of what things mean to people and how they act toward the world because of the meaning constructed from their social interactions. And the analysis of rhetoric, narrative, and discourse can help one understand how language persuades, tells stories, and contains embedded systems of ideas.

Environmentalists are interested primarily in social and environmental justice. Injustice comes about from issues of dominance and power over other people and nature (plants,

animals, land, water, air.) One way to make the world a better place is to look critically at the interactions of society—the communication. This stance rests firmly in the Chicago School of Sociology. At the turn of the 20th century sociologists such as Park, Mead, Dewey, and Cooley at the University of Chicago, engaged in research with communication and social issues. They saw communication as an interactive social phenomenon, not just a transmission. It was a time of much change, with advent of radio and film, a world war and economic crises. During times of change the configurations of society's groups and individuals also change. "The work of Dewey and the sociologists who followed him, the symbolic interactionists, is particularly apt and useful in these moments of rupture" (Carey, 1997, p. 31).

Today's world also features large issues and looming changes that require reconfiguring of society's groups and individuals. People in the U.S. have been saying no to powerful corporations and financial institutions, through the WTO protests in Seattle, the Wisconsin protests, and the Occupy movement. Other groups are looking for different ways to get their food instead of from factory/industrial farming that relies on the giant, multinational food and chemical companies. Some people and groups are changing because they see and understand the issues emerging from the current relationship with the earth. An approach to communication and media that emphasizes norms of democracy and justice can contribute new knowledge to movements for change in the present state of affairs.

Such a project fits within the tradition of the critical paradigm for communication study. Early researchers/theorists saw the media as "manipulative and ultimately oppressive" (McQuail, 2010, p. 67). A perspective that grew out of Marxism and socialism and the scholars of the Frankfurt School (or Institute of Social Research, including Horkheimer, Adorno, Marcuse, and others) revolves around the idea that commercial media give legitimacy to existing power and subdue opposition. A critical-cultural view of media/culture sees communication as a complex of interactions of history, ideology, power

relations, and nature, “with a wide concern for inequality and sources of opposition in society” (McQuail, 2010, p. 68).

Communication plays a central role in sustaining injustice and can be central in the solution. Helping repair or improve the nature-human relationship requires reconsidering how humans define nature and the relationship with it. There is a danger in accepting and believing stories and histories without question. Written with the filters and perspective of those in power, they can hide as much as they reveal. Questioning exposes the injustices and domination over others in these stories. Not questioning them supports the status quo and ignores the others. For a citizen in a democracy and an academic, one role is to help the less powerful participate and be represented fairly. For this to happen there is a need for more than questioning, but also for proposing alternatives.

The idea in critical theory that there is no objectivity in knowledge, because “the object of knowledge is itself embedded into an historical and social process” (Corradetti, 2005), draws theory to method, and so a strong methodological base emerges out of critical theory. Critical theory enables challenges to normative ideas and discourse, a rebellion against how those in power choose to communicate and represent the natural world and the human relationship with it.

Communication comes out of particular cultural, historical and political settings that need to be accounted for in any research. Work that looks at communication of the nature-human relationship must turn to environmental history and the philosophy of technology, two important and useful additions to the theoretical base. Though not the main focus of my research the philosophy of technology is foregrounded at times, while environmental history remains in the background of this particular research.

Because the depiction of environmental problems and power relationships of the communication results in injustice, understanding them requires a critical approach to communication. Critical theory from the Frankfurt school “conceived of American culture as an industry with an assembly line for the manufacture of messages of false consciousness”

(Katz et al., 2003, p. 56). The concern then like today, was about relationships of power through communication, and challenging them is still a means of seeking justice/equality. An example of this type of thinking and research is Theodor Adorno's "A Social Critique of Music" (1945), as he explored the feedback loop of communication from media to citizen and back to media, showing the production of cultural understanding by the media reinforced by the citizens.

All the discouragement in examples from communication seems to call for an antidote, and in the social sciences, the Chicago School's idea from the hopeful progressive era to change the world is a good place to start. The Chicago School sense of hope equates to making a better world, and is based on taking people at their word. So this sense of discouragement can be taken as what Emile Durkheim would call a *social fact*. Eric Rothenbuhler describes the Chicago School perspective as

For the sociologists, the pragmatist conception of pluralist realities and the emphasis on experience yielded a body of methods, presumptions, questions, and explanations about social life in which people's perspectives were as important as any material, non-perspectival facts (1996, p. 108).

The goal of research then is to try to understand how the social fact emerges. Sociology of the Chicago School saw the role of communication as building community, at a time when mass media were taking hold. They focused research on media and large groups of people and the possibilities for social change and found the media a double-edged sword— useful but also deceptive.

The traditions of the Chicago and Frankfurt schools of thought provide the central aspects of communication and critical theory. Together they take media studies toward how the world is represented (or not) and how power is used to dominate people (and nature.) These core theories come together for environmental communication theory in two senses—

People in the United States learn much of what they know about the environment from mass media. Second, environmental problems are being addressed with corporate media and business discourses that alienate people from nature. Environmental communication theory spans the material-symbolic (the world has real environmental problems, and these are communicated through language), the mediated human-nature relationship (these problems are represented in particular ways that may or may not engage the public with nature or action for change), and an applied-activist position (that research can work responsibly to expose problems of representation, a process that opens up opportunities for activists to imagine, and offer alternative ways to communicate for a better world) as laid out by Milstein (2009). This third aspect in combination with the Chicago and Frankfurt School views provide the core approach to the problem.

Communication media show the public how to relate to nature in various ways. How is the relationship swayed by discourse? The dominant discourse and social paradigm pursues a positive program toward consumption and economic growth but the result is discouragement about environmental problems. Common communication that people engage with or are exposed to contains discourse that carries an underlying ideology, but how does it manage to produce so much gloom and inaction? Theories that can help make sense of it will shed light on the associated human-nature relationship.

Environmental Communication. Narrowing the scope from that broad base, environmental communication focuses the topic in communication studies. It is also interdisciplinary, crossing the sciences, social sciences, and humanities to reflect the varied human relationship with the earth.

Two key terms, nature and environment, require definition and consistent use. In simple terms, nature is most often thought of as all of the earth (animals, plants, soil, water, atmosphere, land) excluding humans. Environment on the other hand is most often thought of as human surroundings that include nature and how humans have affected them. Both

place humans apart from the “non-human” nature, but there are those who say humans are part of nature, and those who say environment (because of human effects on it) is a human creation. Both terms symbolically represent complex ideas. The terms are used and interpreted differently by different groups. For example, scientists tend to use environment and advertising writers, nature. This pattern makes the situation even more complicated, but both terms are necessary and overlap to some degree. Here nature is the idea (ideal) of the geo-biological elements, communities and processes of the earth, and environment applies when issues and problems caused by humans are the subject. Humans are clearly part of nature, but a loss of connection to it and a focus on building civilization as a world beyond the minimal needs for survival, have pushed humans at least conceptually out of nature. Part of any desire to reduce harm to people and the world involves helping people reconnect to it.

But even more important is the “principal ethical duty of environmental communication: the obligation to enhance the ability of society to respond appropriately to environmental signals relevant to the well-being of both human communities and natural biological systems” (Cox, 2007, p. 5) where ecological sustainability provides some environmental justice. Environmental communication is a crisis field where scholars rely on a set of assumptions based on ethics and on the fact that the crisis presents “human-caused threats to both biological systems and human communities, and . . . the continuing failure of societal institutions to sufficiently engage (with) these . . .” (Cox, 2007, p. 7). A commitment to this view of environmental communication leads to a particular methodological stance (see Chapter 3).

So essentially we have theory from critical-cultural and media studies. These help make sense of how people in power represent the world and use power to dominate people and nature, and offer how to make the world better. The Chicago and Frankfurt schools provide the ideas here for making sense of the power of media (and society) to craft an unjust relationship with nature, the entity we are part of and rely on for everything. Despite

differences in defining environment and nature both tend to maintain the nature culture divide, but I do not. Environmental communication theory takes the theory above and offers three perspectives—the material-symbolic, the mediated nature-human-relationship, and the applied-activist—and an ethical stance to help people respond to the environmental crises we face.

What Do We Know?

People are discouraged by environmental problems and the communication of them (McKinley, 2008; Shanahan and McComas, 1999; DeLuca, 1999; Opie and Elliot, 1996; Ulman, 1996). Big picture studies point to the environment as “something understood and experienced through certain social practices” (Macnaughten and Urry, 1998, p. 76). Previous studies identify and categorize environmental discourse and conclude that most are anthropocentric, focused on the local and “cover no more than a human life span,” and are being globalized minimally (Mühlhäusler and Peace, 2006, p. 471). Political theorist and social scientist John Dryzek (2013) offers a more political and critical take identifying industrial ideology as the basis for environmental discourses, and develops a matrix of discourse categories described as reformist, radical, prosaic, and imaginative. He then elaborates on how these are used to tell stories, and develops a set of questions to discern the actors and actions they take in these stories.

The few studies that look at narrative and discourse surrounding nature or environmental issues see discourse encouraging consumption, while domesticating and technologizing nature. From a wide swath of U.S. communication and media studies research, narrative is shown to work with the media attention cycle (Shanahan and McComas, 1999), where discourse changes over the life of news stories and depends on other world events. A broad study of environmental communication in the Canadian media discerns in the discourse “an ideology which amounts to the symbolic domestication of Nature” (Meisner, 2005, p. 425).

Communication about the environment occurs in many forms—news and entertainment media, business, government, NGO and advocacy groups, educational settings, and other settings of culture. But two are the most widespread: news and business. News is a basic carrier of events, ideas and attitudes toward the natural world, and businesses develop strategies, identify potential markets and promote products and services for everyday interactions with the outdoors, travel, recreation and other interfaces between people and nature. These two forms of communication create and carry much of the common discussion and most of the main approaches toward nature and environment.

In news media, the most frequent nature element is the weather report. TV weather has been shown to encourage consumer practices through rhetoric from “priestly and bardic” perspectives, using expertise and eloquence to naturalize the weather (Meister, 2001). The technologization of weather discourse (as part of the consciousness industry) was revealed in a semiotic and critical discourse analysis of the Weather Channel “within the context of the hegemonic discursive orders of leisure, consumption, capital accumulation, and risk management” (Vannini and McCright, 2007, p. 49). These studies touch on the nature-human relationship in media texts, by identifying how weather is made to relate to people’s everyday lives, and how people are desensitized to the weather outdoors.

None of the prior studies examine how weather reporting might alienate and discourage its audience. One study that focuses on context looks at the depiction of Hurricane Katrina as a media event, tracking “the technological production of the storm as it developed in public discourse, specifically through news media coverage” (Fleetwood, 2006, p. 796). The project contributes to a deeper sense of the relationship between the social context and the practices in media and meteorology. The technological experience of nature has become a new “source of pleasure” and an obsession for urban and suburbanites (Kaplan, 2001, p.161). Showing what goes on behind the scenes in the production of “weather” steeps the communication in group culture and organizational demands of public science. That is what Fine’s book *Authors of the Storm* (2010), an ethnography of a National

Weather Service office, contributes by examining a set of theoretical issues that surround science, technology, language, imagery, and representation in relation to the media, corporations and other government organizations. Exposing the context and culture of production helps researchers understand how media and meteorology see the nature-human relationship, but not how their work affects the relationship.

Through weather primarily, media tell people what to think about nature, but what should people do about it? The answer most often comes from the business zone. A large shift has occurred recently in how ordinary people interface with nature: the introduction of GPS into cars, phones, cameras, and computers of all sorts. Research on GPS technology examines a basic choice for navigating the earth, a topic clearly in the realm of the environment. Addressing the discourse surrounding GPS, Kaplan (2006) looks at news, books, and academic journal articles over the last 40 years. She shows how discourse fosters an identity for consumers, finding a militarization of consumer identity in the activities of *target marketing* and the defining of consumers as *mobile subjects* and the use of *precision* in locating goods and services. From a cultural perspective, technical control is evident in other work on GPS (e.g. Aporta and Higgs, 2005), which follows the German born, American philosopher of technology, Albert Borgmann. In Borgmann's (1984) device paradigm, the choice of certain technologies distances humans from direct experiences with nature, prompting users to stick more with technology. A key option in the case of Aporta and Higgs's Inuit wayfinding study, often the better one, is to choose not to use the technology. When people do choose technology, engagement with the local environment and the community is diminished or lost.

So what in mediated communication, like news and business, might alienate people from nature and cause discouragement in people with respect to nature and the environment? Further elaboration of the literature (Chapter 2) will help set the stage to show what is known and what needs discovering. Briefly, we know the media-military-industrial complex places business in the driver's seat to promote technology over nature,

effectively alienating humans from the natural world. The media also work on an attention cycle, and draw from existing dominant discourse that domesticates nature through industrialization.

Understanding What Is Going On

A method for research (Chapter 3) that looks at media communication and power relations of people is critical discourse analysis (CDA). Discourse reinforces and exerts power through communication, and can be thought of as a form of social action. CDA can be used to understand how dominant media discourse positions humans in relation to nature and how people come to understanding the natural world. Within critical discourse analysis, Martin Reisigl and Ruth Wodak (2009) have developed discourse historical analysis (DHA) with three main elements: discourse, text, and context (from Fairclough). Discourse includes elements of macro-topic-relatedness—to help define what the discourse is about, pluri-perspectivity—involves several social actors with different points of views, and argumentativity—how sources reason and debate the validity or truth of a perspective (Reisigl and Wodak, 2009, p. 97). The text is a part of the discourse and the actual communication that is analyzed. To describe text requires specifying aspects of the language important to the study, such as metaphors, framing, and rhetoric. Finally, context is seen as spanning four levels—from the language, to the discourse, to the situation, and to the broader sociopolitical and historical setting.

CDA looks at control, hierarchy, and dominance in relationships, often hidden or obscured through language or normalization, and how these three aspects of relationships are maintained or challenged. Analysis is the taking apart or digging deeper into what is being said, revealing domination and injustice. The synthesis of the two in critical discourse analysis opens up opportunities to find something better and something ethically appropriate. I use CDA to ask how news and business communication depict the nature-human relationship through discourse? What are the power relationships involved and how

do they promote inequality and injustice for nature and humans? What aspects of the discourse might contribute to alienation from nature and the social fact of “discouragement” associated with communication about the environment? Alienation has popular meanings as a sense of being controlled or exploited; as isolation from a group or activity that one should be involved with (including oneself and nature); and as a lack of identity with the products of one’s labor. Each of these has the essence of Karl Marx’s definition, which sees working (for wages to produce a commodity) in order to live, robs people of essential connections to themselves, other people and nature. This can be seen in the dominant discourse of news and business that promote consumerism. Discouragement is something in discourse that can depress, daunt, dampen, dissuade, and dishearten, or that can “disempower” citizens as some indicate (Hajer and Versteeg, 2005; Macnaghten and Urry, 1998). It is one result of alienation, and of course not everyone becomes discouraged, some people take action. But we need more people to take action, so that is why it’s important to look at alienation and discouragement.

CDA as a critical and ethical method is part of a larger trip through activist, qualitative inquiry. It requires the analyst to maintain a sense of self-reflexivity to respect the various others (authors, meteorologists, experts, and audience) in the research and keeps tabs on how one’s stance enters into the research. As an environmentalist, my take is that there is always room for improvement in how we treat nature and how we define the human relationship with it. Yet the people in power who maintain a progress and consumer discourse may have no clue why one might want or need to change the relationship with people and nature. So my research must be capable of seeing the world through their eyes as well as my own.

Through commonly consumed media and information people depict and come to an understanding of their relationship with nature via discourse. The discourse used in communicating different aspects of the nature–human relationship may sustain environmental and social injustice, and so critical discourse analysis can lead to

understanding the situation. The first step to changing the discourse is to raise awareness of how this particular communication support alienation and can lead to discouragement; that understanding can help undo some of the injustice surrounding the current environmental problems humans are experiencing. Two case studies will attempt to grasp the dynamic of discouragement.

The first case (Chapter 4) looks at TV weather reporting, a common interface that communicates about nature to people. Weather is ubiquitous and humans are steeped in it despite long and wide-ranging attempts to shield human bodies from temperature, moisture, pressure, sunlight and wind. The weather on earth is one of the most important aspects of survival for humans. Weather is key to air, water, food, and shelter. In a nation like the United States, humans mostly learn about the weather through television. TV weather reporting is considered a public service of sorts because most of the weather data comes from the National Weather Service. But weathercasts embed that data in a commercial news enterprise. Weathercasters talk about and show citizens “nature” by way of their reports and forecasts employing the discourse and rhetoric of science and a wealth of meteorological and TV production technology. The relationships depicted between people and the weather arise from the advertising market, news competition, and meteorologists, professional training, and although the TV meteorologists do not know the audience well, they still focus on consumer needs.

The analysis of morning TV weather forecasts from the three top broadcast channels in Boston sorts out a general picture of how commercial television meteorologists depict the relationship between people and nature. Boston is a sensible choice as a medium sized city, with variable weather and a thriving, high-quality television market. TV has been a mainstay of weather news for decades and morning forecasts help set up expectations and actions for the day, especially when they echo into online and mobile media for residents planning their commute, work, errands and recreation.

What arises out of the critical analysis of the discourse is a struggle or battle with nature. As combatant, the weather makes people uncomfortable and requires that humans protect themselves from it, diminish its effects, or stay indoors to avoid it altogether. Nature in discourse is moody and unpredictable, despite all efforts to predict it, and rarely meets expectations. The technical setting opens further avenues of disengagement from nature—physical and mental. TV weather splits up or defers the forecast itself to get viewers to watch more TV, keeping them indoors away from nature. Enhanced graphics and satellite maps, animated to flow seamlessly from past to future, represent the world from a distance, nearly severing the human connection with it.

At a time when people need to understand better the human connections to the earth, understanding the existing dominant discourse of media weather opens up the possibility of imagining what a fairer, more socially and environmentally just weather forecast might look and sound like. Analysis of the discourse can lead to further steps toward change at different levels, which can empower citizens and encourage meteorologists to re-connect people to the earth during the current climate crisis.

The second case (Chapter 5) investigates communication from business by looking at discourse accompanying the introduction of the Global Positioning System (GPS) from the late 1990s to the late 2000s. Over the last twenty years, GPS technology has grown into a ubiquitous element of human life in Western nations and has become an essential nature-human interface. Beginning as a military project and propelled by industry, the Global Positioning System was developed to surround the earth with some 30-plus satellites. They send and receive GPS data to blanket the inhabited globe and to inform those with transceivers of their location, speed, altitude, and time. With its roots in the U.S. military, GPS was designed to locate troops, guide missiles to kill enemies, destroy infrastructure, and sense nuclear detonations. The technology is steeped in the injustices of war. Like other technologies developed in the military and promoted by industry, GPS came into wide

adoption in civilian society, at first in a limited way but then on a wider if not planetary scale.

GPS is a rich area to study power over and control of nature and humans. Businesses and their allies use a range of print and on-line media to build the market for GPS. In mainly print specialty and mainstream magazine and news features but also blogs and other digital venues from the United States, business marketers, analysts, and consumer guides tell stories about the relationship between humans and nature. Critical analysis of the dominant discourse in the late 1990s as the market was developing, and a decade later as the market was maturing shows a clear change. At first, practical criticism was the norm in articles that focused on the future and progress and addressed a fairly broad user-base. Once the market matured the articles tended toward technological enthusiasm, sharing a short history, predicting and encouraging more growth of the industry, and espousing the comfort, convenience, and efficiency of the technology.

Like the weather, discourse of the human relationship with nature surrounding GPS assigns nature particular attributes. The industry depicts nature as slow and getting in the way of the technology. The dominant discourse sees technology as essential to the citizen/consumer, something people are not complete without. The ways of presenting average U.S. American's need for navigation on the earth to find out where they are, where to go, and how to get there do change between the two time periods. At first the technology is questioned, but there is hope and certainty it will improve. The later discourse has embraced the distancing of people more from nature and even alienating them from their relationship with nature. The industry victory cry is "GPS for everyone!"

The outliers to this tale are the specialty articles from enthusiasts who engage with nature purposefully. They resist and question of the need for GPS technology because of the way it removes and distances users from nature, because those who fully enter nature really need to "know" how to read it to survive. Understanding the emerging discourse of GPS technology aligns with enthusiasts and opens up the opportunity to challenge this

change in accepting GPS, to re-imagine a world of earth citizens navigating in other ways and come up with a more just and sustainable system that keeps people connected to the earth.

Why This Matters

A recent survey showed parents found it “too stressful” to take their kids outdoors because of poor weather, the cost, the time commitment, and the range of stuff they have to take along—cups, diapers, strollers, and so forth—to be comfortable and prepared (*The Times* (London), 14 November, 2014). On a popular social media site colleagues with small children exclaimed in their posts how depressing they find recent news of the Antarctic ice cap melting, how it makes them feel panicky, and how their kids will inherit the problem (New York Times, May 12, 2014). An essay from a student in an environmental communication module cites the documentary *Trashed* (2012) on the amount of plastic pollution in the ocean, saying “it is statistics like these, however, that, rather than encourage me to act, make me want to hide from the problem and pretend that it is not out there” (anonymous essay, 2014, quoted with permission).

The main sources of news and information for urban and suburban citizens are dominated by corporate/consumer culture aiming to sell products and make profits, placing environmental concerns elsewhere. Communication that tends to block people from knowing about and experiencing a positive experience in nature helps maintain the dominant social paradigm of economic growth, which is not sustainable and is the source of alienation and environmental problems on earth. At the same time, making out nature to be a purposeful force—one that makes people miserable and takes revenge on humans—develops antagonism toward the natural world at a time when the urgent need is to cultivate love of and appreciation for nature. Even parents who teach children from a young age to cherish and protect nature at all costs may not prevail over the reigning discourse. If the

young continue to be exposed to communication that paints a negative picture of nature, the chances of their future situation improving seem slim.

People do more than love the earth; they are connected to it and all other creatures biologically (Wilson, 1984). It may not be instinctual, but humans must know that they would not be here if it were not for the earth. As future scholarship and activism comes to do something about repairing the relationship with the earth, mediated communication conveying that relationship needs to be among the first things to change for several reasons. First, it interferes with the human relationship with the earth, by distancing people from it (via technology) and from the understanding that nature is the life source. Second, it burdens people emotionally, because the problems seem overwhelming and will require the need to change and adopt a less convenient way of living. Third, it persuades people that changes they make cannot have much of an effect. Finally, it relies on particular discourses—individual responsibility, scientific and economic progress, and the basic dualism that separates humans from nature—that also dissuade. Because of all the interference, burdens, and dissuasion, mediated communication appears to feed into the alienation of people and the sense of discouragement they express. Critical discourse analysis of that communication opens up hope and the option for further research to reimagine the environmental communication in a less dominating and more just form.

CHAPTER 2. The Literature of Critical Discourse Analysis

How does an urban, media-centric, consumer citizenry in the United States relate to the earth? Informed mainly by media communication, a discourse that values other things seems to obscure that relationship with nature. How? If media discourse keeps the focus away from the human relationship with nature and places it somewhere else (on the economy, politics, or entertainment), those in power need not address environmental degradation. What does that mean for people and the earth? Dystopian discourses about environmental issues can cause despair and instill futility through their views of domination and power relations. But what about everyday communication not necessarily about environmental issues or problems? A focus on discourse can build understanding of how news media and business position the human-nature relationship and how that view discourages people.

Critical discourse analysis is a theoretical position (as well as implying a method) that starts from ideology. Ideology permeates discourse about nature, and for example, Meisner describes specific ways that—

the media are promoting an anthropocentric and resourcist ideology of Nature. Such an ideology, though by definition human-centered, does not serve all humans equally. It primarily serves the interests of those who benefit most from the exploitation of Nature, the resource extraction companies, the tourism operators, the car makers and so on—those best positioned to benefit from the capitalist consumer economy. (2003, p. 235)

Western society steeped in consumer-capitalist thinking pursues nature for “resources,” for leisure, for travel, and for other activities and materials that sustain existing inequalities. Those in power tend to stay powerful, and nature becomes a focus of inequality.

Discourse

Research on ideology surrounding the environment is plentiful, and ideology is shared, or challenged via discourse, which is the point of interest in this research. One might study the phenomenon by looking at media production and practice, language, and representation with a critical stance. The use of an eco-focused critical discourse analysis matches well to the situation and setting. Exposing the underlying discourse can help build understanding of how ideology molds the human relationship with nature in different ways.

An aspect of communication. The concern here is to understand the aspects of nature and environment “communication as embedded in society” (Cobley, 2008, p. 1348). Definitions of discourse are many, but boil down to major, relevant, social or political issues often made of “speech acts” that can be arguments, metaphors, or neologisms, as a result and a form of social interaction (Scheufele, 2008). Discourse is how people, particularly those in power, talk about something. Researchers who analyze discourse draw from media texts referred to as public or media discourse. The media are producers of discourse but also a setting for other discourse participants such as politicians, experts, scientists, and other journalists. Discourse can be seen as a “process of collectively constructing social reality” (Cobley, 2008, p. 1349), and participants push for acceptance of their point of view as the norm.

History of Critical Discourse Analysis. In the tradition of communication studies, critical discourse analysis has roots in the humanities and social sciences and focuses on language as social action. Social theory in the approach often draws from Marx for the importance of language. “The forms of signs are conditioned above all by the social organization of the participants involved and also by the immediate conditions of their interaction” (Volosinov, 1973, p. 21). The content of a sign (meaning language) as “only that which has acquired social value can enter the world of ideology, take shape, and establish itself there” (p. 22). Critical discourse analysts refer to the use of power and domination through discourse, which leads to agreement and collusion or hegemony as developed by Gramsci (van Dijk, 1993; Tenorio,

2011). Another idea is that discourse, from Foucault, is a practice that shapes the objects it is about in an organized way (Tenorio, 2011). So the social construction of meaning through the use of language and the persuasive use of language to maintain or challenge hegemony are the core aspects that critical discourse analysis investigates.

The critical aspect is drawn from the Frankfurt School —

During the 1930s, the Frankfurt school developed a critical and transdisciplinary approach to cultural and communications studies, combining critique of political economy of the media, analysis of texts, and audience reception studies of the social and ideological effects of mass culture and communications. (Kellner, 1998, p. 1)

Mentions of Mead and the Chicago School offer concern for “how it is that the social order is integrated through communication. Here a new set of concerns emerge: function, integration, legitimacy, power, and control” (Carey, 1996, p. 25). The concerns promoted a focus on society in relation to mass media (van Dijk, 2003). A final nod goes to Bakhtin on the importance of the text, in that, “where there is no text, there is no object of study, and no object of thought either” (1986, p. 103). The critical approach unveils hidden inequalities and ways of communicating that maintain social power structures.

Historical summaries of critical discourse analysis indicate it began in Australia with critical linguists Fowler, Kress, and Hodge. Beginning in 1974, a manifesto led to what became Critical Discourse Analysis, and “declared the need for a new form of linguistics, to study language in a way that would ‘explore the relations between language and thought, language and society’” (Hodge and Kress, 1974, p. 5, in Hodge, 2012, p. 1-2). It took a convergence of—

critical linguistics and social semiotics, first and primarily in the UK and Australia, to get a more detailed view of the other side of the relationship, namely an analysis of the

structures of text and image, even if such linguistics and semiotic approaches usually did not aim to provide sophisticated sociopolitical analyses (Chilton, 1985; Fairclough, 1989; Fowler et al., 1979; Hodge and Kress, 1988; Kress and Hodge, 1979; In van Dijk, 1993, p. 251).

Van Dijk points out that German and Austrian sociolinguistics use the same critical approach to language but on different topics, such as “immigrant workers, language barriers, fascism and anti-Semitism,” referring to the, critical sociolinguistic paradigm of Bernstein (1971–1975) (van Dijk, 1993, p. 251.) A mixing and sharing of approaches to communication and society came from both sides of the Atlantic.

These approaches were meshed with “the British discourse analyst Fairclough and Dutch text linguist van Dijk” (Garrett and Bell, 1998, p. 6). Where Fairclough focuses on text production of discourse, van Dijk embraces sociocognition—how people process social information—or the “mediating between discourse and society” (Garrett and Bell, 1998, p. 6) Fairclough tracks one trend in particular, that of the marketization (or commodification) of discourse. Described as *interdiscursive* (a mixing of styles, discourse and genres of texts), *interdiscursivity* is present in many environmental communication texts. These often contains metaphors, such as the ocean conveyor belt—the global ocean current that is constantly moving due to changes in temperature and salinity—so applying the idea of a machine to nature. Investigating the symbolic/visuals or words and images of texts, critical discourse analysis also acknowledges the presence of intertextuality. Ideas, phrases, and words from past speakers, writers, or performers are repeated, layered and combined, almost like compost, to produce discourse or fertile soil. In general, though, critical discourse analysis looks at social hierarchies and power relationships through the representations in texts (that are intertextual and interdiscursive), traditionally used in and expressing social relationships. Critical discourse analysis provides a strong theoretical position for viewing the nature-human relationship.

Media Text Analysis

Access to media is a form of power and how those with access use language in news, about weather or new technologies requires investigation. Critical discourse analysis is commonly used for media texts, because the media are institutions that generate and carry discourse. It is also used with political texts for the same reasons, and because of the relationship between inequality/injustice and political practices and power. Like communication studies, critical discourse analysis is transdisciplinary, adopting different theories and methods to investigate any text or set of texts from any genre (Fairclough, 1992).

Critical discourse analysis has roots in linguistics and social theory, and has not always emphasized connections to rhetoric and framing. Environmental communication has traditionally looked at rhetoric to discuss how people try to persuade audiences on environmental issues (see Killingsworth and Palmer, 1992). Framing research has been widely employed in research on environmental communication as well (Killingsworth and Palmer, 1992.) Among other elements, metaphor plays a large part in discourse, and is used to create, promote, and perpetuate a particular discourse. Communicators make the unfamiliar familiar through metaphors, “as a mode of thought” that is “psychologically dependent as well as politically motivated” (Dryzek, 1997, p. 3). Discourse is seen as powerful in shaping people’s understanding and acceptance of the natural world.

The extension of linguistics to discourse analysis developed into a system to identify language form, meaning and context. Language, a system of symbols used to represent the world, is the lens of rhetoric, and feeds discourse and narrative.

As happens in other fields as they develop, key figures summarize the main tenets to define the territory. Fairclough and Wodak (1997, pp. 271–280) summarize critical discourse analysis in eight principles found at the core of the approach, that —

- Critical discourse analysis addresses social problems,

- Power relations are discursive,
- Discourse constitutes society and culture,
- Discourse does ideological work,
- Discourse is historical,
- The link between text and society is mediated,
- Discourse analysis is interpretative and explanatory, and
- Discourse is a form of social action.

Though this seems to encompass all of the desirable aspects of a research approach, academics favor some aspects over others and discover other aspects not yet included as the field evolves. I endorse these tenets, but I think power relations are only partly discursive, and that the link between text and society is mediated is rather obvious, but not always true. Still, they provide a useful framework for how critical discourse analysis can be applied to the particular problem of discouraging communication about the environment.

Three of the eight aspects above address what discourse and discourse analysis does. For what it does, CDA is used to address social problems, and clearly the human relationship with nature is a huge social problem. As discourse does ideological work, research would reveal examples of ideology in the texts about nature as in, say, the push for sustainability, or nature as a resource for economic growth. At the same time discourse constitutes society and culture. The rise over the last couple of decades in “going green” is evidence of discourse about the environment helping shape society.

Another four aspects of discourse define what it is. So within that position if discourse is a form of social action, then it should be possible to see how discourse affects the nature-human relationship. In an inverted relationship, power relations are discursive, so discourse contains power relations, and one might see how the domination of nature arises. Where discourse is historical—the ways of talking and thinking about issues carry people, places, ideas, and things from the past—things external to the text—to help define the present and future. A term such as Mother Earth fits this aspect. And finally when the link between text

and society is mediated, it can help in shaping or filtering discourse by different means and for different purposes. A final aspect of critical discourse analysis is that discourse analysis is interpretative and explanatory, requiring researchers to be cognizant of their perspectives and roles in generating understanding and in how research on discourse is presented.

The Discourse of Critical Discourse Analysis

Not surprisingly, the literature surrounding critical discourse analysis hails the founding academics of critical linguistics: Roger Fowler, Gunther Kress, Robert Hodge, and Norman Fairclough. Early on there was a need to address the history and context of texts when analyzing them (Fowler, 1979). Two books *Language and Ideology* and *Language and Control*, published in 1979 about language, control, and ideology came from more the social semiotic perspective (Kress and Hodge, 1979). In the early 1980s, an analytic framework developed “for studying language and its relation to power and ideology” (Fairclough, 1992, p. 1), insisting that the analyst engage with multiple levels of understanding—discursive practices, the text, and social practices. Not long after that, other frameworks arose from other fields and perspectives, such as Teun A. van Dijk with a socio-cognitive perspective, whose key area of concern was the language of racism in the news, and Ruth Wodak with a political and historical take on language, power and ideology.

This “first wave” of scholars still attracts followers who, in the academic tradition, may critique the work and then develop a different or modified perspective on it. As zones of academic research that use it develop, scholars train their students, inform their followers, and connect with others doing similar work. They enforce and support their style and focus of research by writing summaries of the approach (Hajer and Versteeg, 2005; Wodak and Meyer, 2009; Tenorio, 2011). At the same time they specialize, craft, and refine versions of it. One update includes interdiscursive analysis “of how genres, discourses and styles are articulated together” (Fairclough, 2004, p. 225), and Van Dijk’s socio-cognitive approach links “the relations between mind, discursive interaction and society” (2009, p. 73). His

primary concern is that analysts take a sociopolitical stance toward dominant relations by elites and the pattern of access to public discourse (or its lack) by different social groups. Like the change in discourse surrounding nature over time, the discourse focus changes according to the historical and social context. With the increase in green discourse and climate change discourse among others, this might make the time right for an ecocritical approach to discourse analysis (Stibbe, 2013).

First and second wave groups verified and expanded on the initial ideas and methods. Critique of critical discourse analysis rests in a few areas. A lack of context became an important aspect to consider (Fairclough, 2004; Collins and Jones, 2006) as well as the history surrounding the discourse (Collins and Jones, 2006; Matheson, 2008). Others focus on (news) production factors and other mid-level aspects (Philo, 2007; Santander Molina, 2009) and the lack of engagement with audience or participant understanding (Philo, 2007; Matheson, 2008). Going beyond the nuts and bolts, other second wave researchers felt that the critical aspect needed more support (Tenorio, 2011; MacGilchrist, 2007), that the research needed to be shared with a wider audience (Tenorio, 2011), and that offering *good* examples of discourse is imperative (MacGilchrist, 2007). It seemed that critical discourse analysts ebb and flow in their commitment to the critical tenets of the approach, but as a whole appear to be getting back on the critical path.

Other expansions include reflection on a central tension between *discourse* to understand social action, and *analysis* “as study of language use in terms external to participants” (Matheson, 2008, p. x) with a push for critical discourse analysis to be more hermeneutic. The expansions lead the field to be more inclusive, but with the addition of a contradictory aspect, because contradictions arise out of complexity, an important characteristic of the world (Hodge, 2013) and more flexible in the subject and style of critique (Wodak and Meyer, 2009). Flexibility offers the opportunity to push or open up the boundaries of the approach, as many researchers do. Proponents of “CDA” stake out

territory, using bits and pieces of other areas of study, and build a “discourse” of their approach.

Taking a Different Perspective

Critical discourse analysis is useful to understand mediated communication and the power relations and injustices that arise. What about looking at mediated communication and how it depicts the nature-human relationship? Humans dominate nature, and injustice occurs within both nature and humans. But what does it look like in news and business media? Only in the last decade or so has research published in the journal *Environmental Communication* employed critical discourse analysis in research, and so there is opportunity to contribute to and promote the approach with an ecological focus.

Ecocriticism. An alternative to eco-focused critical discourse analysis drawing from the humanities is ecocriticism, a blend of literary criticism, history and ecology. Ecocriticism began with the critique of nature writings but has expanded to nearly all texts. Of late it engages with ethical and political concerns (Buell, 2005) and reaches out to other disciplines and to new theoretical and practical paradigms (Branch and Slovik, 2003). Ecocriticism analyzes literature about the human relationship with nature and the environment (for U.S. overviews see Glotfelty, 1996, Love, 2003; Branch and Slovik, 2003; in the U.K., Garrard, 2004; and environmental criticism, Buell, 2005). The field of ecocriticism followed a progression from focusing on literature about preservation, to environmental justice, and most recently to place (positional or located?), aesthetic, ethical and political concerns. A thoughtful academic, Buell (2005) distinguished his work, as *environmental criticism* rather than ecocriticism. His strongest reason for doing so was that “*environmental* approximates better than *eco* the hybridity of the subject at issue”(p. viii), meaning the melding of human and nature. More importantly for my research, the raised interest in issues of equity and toxicity from the human relationship with nature are germane.

More recently researcher/authors have suggested incorporating the tenets of ecocriticism to critical discourse analysis. Blending approaches offers a view from ecolinguistics with an expanded range of issues to engage with, better theoretical tools for discourses that ignore the ecological, and “theoretical insights into ‘how discourse works’ derived from examining new data from a new approach” (Stibbe, 2014, p. 125).

For research about understanding how communication affects the nature-human relationship, a discussion of environmental discourse is necessary (see Dryzek 1998, 2013 and Harré et al., 1999). Basic discourses of the environment must deal with the double complexity of human social and ecological systems (Dryzek, 2013). Environmental discourses are the representations and systems of meaning contained within communication and bind with political economic power and practices. Dryzek says environmental discourse was born out of industrial ideology and divides environmental discourse into categories, first as reformist or radical and second as prosaic or imaginative, resulting in a four-way matrix. He describes the intersections as *problem solving* (reformist-prosaic), *sustainability* (reformist-imaginative), *limits and survival* (radical-prosaic), and *green radicalism* (radical-imaginative), each of which constructs a particular story (Dryzek, 2013, p.16). Problem solving mainly uses public policy to adjust the political-economic status quo and address the environmental issue at hand. Limits and survival seeks greater control of current system by the usual elite so that we don't run out of resources or pollute ourselves to death. Sustainability tries to erase the differences between economic and environmental values, making them complimentary. Finally, green radicalism outright rejects the status quo of industrial society and redefines the nature-human relationship, though with disagreement between factions. His matrix provides a convenient way of classifying particular discourses that come out of industrial ideology.

Dryzek also dissects the ontology of environmental discourse by looking at “basic entities recognized or constructed, assumptions about natural relationships, agents and their motives, and key metaphors and other rhetorical devices” (p. 20). My research uses these

questions to ascertain the key aspects of the story being told about nature and the environment with respect to humans. My study of environmental discourse can benefit from Dryzek's ontological analysis, and can also apply to discourse is not specifically about the environment.

Boundary Pushers

Since they are part of a critical clan, critics see critical discourse analysis as lacking, limited, or misguided in some way, for example as focusing too much on “the text,” being parochial or Western, or missing an action component. Of course they are trying to improve the approach as well. Expanding beyond the text to more social analysis is important for understanding the interactions of language, society, and power relations. The critical take on the approach as parochial is well known (Blommaert, 2005)—that communication scholars need to encourage and engage in research beyond the white, Western world. To do more than analyze discourses, researchers must propose new, liberating approaches (Martin, 2004), such as expanding to “positive” discourse analysis. The twist of this approach describes which media texts contest dominant framing of issues to propel marginal discourses into the mainstream. Others have indicated that the “greening” of language is a problem because it replaces action (Harré, 1999). “Green” language indicates a sensitivity or awareness to environmental problems. An example of critical discourse analysis with positive suggestions comes from Milstein (2009, p. 25), who “examines how certain Western institutional discourses reproduce particular human relationships with nature.” She developed three Western dialectics found at a zoo: mastery-harmony, othering-connection, and exploitation-idealism, which resonate with Hodge's concepts of contradictions. Hodge draws the importance of contradictions out of *ideological-complex theory*, and how “Contradictions come from the process of struggle, as meanings from the other are incorporated into discourse, in complex structures which risk incoherence to manipulate better” (2012, p. 5). Milstein's work is a model for research on the

problem of discouraging environmental communication, which may come up with other dialectics that work better with the chosen medium, the perspective on the communication and the particular issue. Milstein will help me expose nature-human relationships in the discourse.

A transdisciplinary, flexible approach like critical discourse analysis can be critiqued from a wide range of perspectives, but what is pertinent here is that using it to study media texts connected to nature requires looking beyond the text, and beyond the industrial West, to open opportunities for action to make a more just world for humans and nature.

Making Connections

Critical discourse analysis of environmental communication that looks at how the nature-human relationship is depicted in the media is largely missing from the literature. The few relevant studies look at narrative surrounding nature and environmental issues, discourse that encourage consumption, and domesticates and technologizes nature. From a wide swath of U.S. communication and media studies research, narrative is shown to work with the media attention cycle (Shanahan and McComas, 1999), suggesting that discourse changes over the life of news stories and depends on what else is going on in the world. TV weather has been shown to encourage consumer practices through rhetoric from “priestly and bardic” perspectives using expertise and eloquence to naturalize the weather (Meister, 2001). A broad study of environmental communication in the Canadian media discerns in the discourse “an ideology which amounts to the symbolic domestication of Nature” (Meisner, 2005, p. 425). The technologization of weather discourse, as part of the consciousness industry, was explored in a semiotic and critical discourse analysis on the Weather Channel (Vannini and McCright, 2007). Vannini and McCright point out how television weather has become a vehicle for consumption, so that any kind of weather can be reported as an opportunity to consume, whether for pleasure or security. So instead of being information solely for how one might interact with nature, it is also how one might

interact with the market. Philosophy of technology connects as well with communication about the nature-human relationship. Each of the prior studies touches on the nature-human relationship in media texts, without engaging fully in the depiction of the relationship and how discourse presents the relationship.

Some research focuses on the context more than the studies above do. One example looks at the depiction of Hurricane Katrina as a media event (Fleetwood, 2006). It “track(s) the technological production of the storm as it developed in public discourse, specifically through news media coverage” (p. 769). The study contributes to the context and social practices within media and meteorology. Showing what goes on behind the scenes in the production of “weather” steeps the communication in group culture and organizational demands of *public science*. Gary Alan Fine’s (2010) book, *Authors of the Storm: Meteorologists and the Culture of Prediction*, an ethnography of a National Weather Service office, contributes to understanding the science of meteorology as public science practice, in which the communication is mediated and shaped by others with their own economic and professional agendas (p. 17). Exposing the context and culture of production helps researchers understand how people see and communicate the nature-human relationship.

Uncovering Depictions of the Nature-Human Relationship

There is a need for more critical discourse analysis of environmental communication. There is a need to look at hidden aspects of language in everyday media communication which depicts the relationship people have, should, or should not have with nature. Research that seeks to uncover and unpack common mediated communication can help scholars and activists understand how media depict the nature-human relationship, and critical discourse analysis is a compatible theory. At the same time the appeal of the approach is that it has close ties to a politics of possibilities (Madison, 1998), because it uncovers inequality and offers other ways of communicating or doing that are more just.

Environmental critical analysis can unveil discourse that reinforces the take on the world of those in power and which hides humans' reliance on nature (Killingsworth and Palmer, 1992). At the same time environmental critical discourse analysis opens up possible alternative, positive and encouraging takes on how the world needs to work and how those in power do not always work in the best interest of humanity or of nature.

Studies of everyday communication about the concealed relationship between humans and nature would help. When critical analysis exposes the power and domination of economic consumer discourse, more just ways of communicating about the human relationship with earth can then follow.

CHAPTER 3. Methods for Studying the Question

Environmental communication research on discourse in media is fairly limited. The few studies that look at discourse reveal several general categories: a domestication of nature, a technologization of nature, a consumer focus, and contradictions in the represented human relationships with nature (Vannini and McCright, 2007; Milstein, 2009; Meisner, 2005; Meister, 2001). More work is needed to address power relationships in texts surrounding nature and the environment. Over the last decade or so, the field of critical discourse analysis has developed a useful approach to understand the discourse in media texts and the power relations in those texts expressed in the relationship between humans and nature, along with implications for what the public may be learning from that discourse. The research presented here seeks to understand how the nature-human relationship is depicted beyond general categories and to understand how it promotes alienation that leads to the “discouraging” experiences of nature among those receiving communication about the environment from U.S. media.

In this research the relevant questions are: How do news media depict the nature-human relationship through discourse? What power relationships are involved and how do they connect to existing inequality and injustice related to nature and humans? What aspects of the discourse might contribute to alienation from nature and the social fact of discouragement associated with communication about the environment? The definition of discouragement used here is in depressing the audience, daunting them when courage is needed, dampening their enthusiasm, dissuading them from action, and disheartening them about the future. The result is a general disempowering of audiences that include citizens and the young (Macnaghten and Urry, 1998, in Hajer and Versteeg, 2005). The injustice of alienation and disempowerment requires investigation, carried out here through two case studies.

Justice and Reflexivity

An imperative in the research is to examine unjust social and environmental relations and communication so that alternatives can emerge, following what Denzin and Giardina (2011, p. 18) call activist qualitative inquiry. Another part of qualitative investigation is to address how one treats and relates to the sources of information. A way of looking at research is that the scholar needs to travel together with people, to discover the world, rather than research like a mine, digging for precious materials. The stance of a learner combined with a critical stance toward method aligns with the critical and cultural theories for the research.

An embrace of critical theory pairs with ethical and moral methodologies (Christians, 2000), which means seeking ways of knowing that engage with and question representations of humans and the environment that promote injustice. Justice, as in social and environmental, would seek to challenge and expose abuses of power by corporations and governments and push for fair treatment to those affected. Methods also must show a concern for the positionality of the researcher, who, in the case of environmental research, must take a stance on the side of transformation of society to a more democratic and just form. A commitment to those who speak through the research can acknowledge their diverse voices (un-silencing them) and stand beside them for a better world.

Communication has a long history of quantitative and qualitative research. The split between qualitative and quantitative methods in communication and media studies is not something productive or necessary to uphold in this research. As in journalism, the idea that one can be objective in measuring research observations is a dated concept, and so the idea of a quantitative method absent of any qualitative elements makes little sense. The world is a blend of both aspects, and this research fills a need because much of the generally available information on nature is quantitative, such as weather statistics and records or GPS position data and usage.

Critical research makes it imperative to be self-reflexive, conducting the studies by placing the other in a position of shared discovery. While investigating how others represent the nature-human relationship, I need to be mindful of how I represent the authors and presenters of information. A critical scholar, is “committed to showing how the practices of interpretive qualitative research can help change the world in positive ways” (Denzin and Giardina, 2011, p. 13) by coming up with new ways of doing things that free communicators and audiences alike.

Conceptual Design and Research Planning

In the environmental movement, social change is key, and key to social change is discourse (Fairclough, 1992). Humans can make changes to current systems that have resulted in the alienation of humans from nature. People need to become more aware of their relationship with the earth, have more of a relationship with the earth, and better understand the relationship and its effect on others, in other words value it more. The current trend of “green” discourse encompasses a broad range of communication and messages. Americans see the government as responsible for protecting the environment by way of the EPA, and environmental policy and regulation. Their assessment of whether the government is doing enough changes depends on many things, like their personal experience and what they hear or see in the news. Oddly enough, one thing that has been measured to show public satisfaction with government environmental protection is how well the economy is doing. (<http://www.gallup.com/tag/Environment.aspx>)

It is a complicated and contradictory situation often addressed as a zero-sum game. But people are worried about the environment for good reason. Things are getting worse according to the authoritative World Wildlife Fund’s Living Planet Report 2014 and the ecological footprint of humans (World Wildlife Fund, 2014). Humans are using the equivalent of 1.5 of the earth’s resources (and the average person in the United States uses more than twice that, or the equivalent of four times what the earth can sustain). “We cut

trees faster than they mature, harvest more fish than oceans replenish, and emit more carbon into the atmosphere than forests and oceans can absorb” (WWF Living Planet Report, 2014). Developing countries look to adopt the U.S. or Western lifestyle, a lifestyle and standard of living (that relies on a standard of working) responsible for most of the environmental problems today.

Populations in developed western nations like the U.S. are predominantly urban (around 75 percent), and so people tend to have different kinds of relationships with nature, and a reduced exposure to nature compared to rural populations. At the same time,

much, maybe most, of what we learn and know about “the environment,” we know from the media, broadly defined. Indeed, this applies not only to our beliefs and knowledge about those aspects of the environment which are regarded as problems or issues for public and political concern, but extends much deeper into the ways in which we as individuals, cultures and societies view, perceive, value and relate to our environment. (Hansen, 2011, p. 3)

If most citizens get information and entertainment about nature from media where the majority of discourse is presented, promoted, and perpetuated, then communication media are a key area to investigate the discourse of nature.

The current and longstanding environmental issues in the U.S. exhibit power relationships that create environmental and social injustice and inequality. The major role media play in people’s lives by creating and distributing discourse is the point where understanding must be improved. The media are suppliers and promoters of discourse (Bell and Garrett, 1998) and discourse is social action. Understanding the content, creation, dissemination and promotion of this discourse can help improve human relationships with the earth. A method that analyzes discourse and the power relationships involved is the ticket to understanding.

Discourse is a “big picture” aspect of communication that acknowledges the history, context and language of texts as well as what is involved in the production of the texts under investigation. Discourse is rich and complex (Hodge, 2012). A critical perspective on discourse analysis can sort out and understand the power relationships surrounding the issues and talk. Through discourse, social change happens, and the world needs social change concerning the environment.

Instruments applied. Generally, the method draws from four areas: the overarching concept of context, text, and discourse from Fairclough (1992); Reisigl and Wodak’s discourse-historical approach (in Wodak and Meyer, 2005), an ontological assessment from Dryzek (2013), and the idea of contradictions in discourse from Hodge (2012).

Fairclough’s model is spread throughout the research presented here like a mattress that the other models rest on. The model is made of three connected aspects of discourse—the object of analysis, the processes that the object is produced and received by humans, and the socio-historic conditions that control the processes. Reisigl and Wodak’s The discourse-historical approach searches for discursive strategies through an eight-step process that includes the following:

1. Activation and consultation of preceding theoretical knowledge (i.e. recollection, reading and discussion of previous research).
2. Systematic collection of data and context information depending on the research question, various discourses and discursive events, social fields as well as actors, semiotic media, genres and texts.
3. Selection and preparation of data for specific analyses (selection and downsizing of data according to relevant criteria, transcription of tape recordings, and so forth).
4. Specification of the research question and formulation of assumptions on the basis of a literature review and a first skimming of the data.
5. Qualitative pilot analysis (allows testing categories and first assumptions as well as the further specification of assumptions).

6. Detailed case studies (of a whole range of data, primarily qualitative, but in part also quantitative).

7. Formulation of critique (interpretation of results, taking into account the relevant context knowledge and referring to the three dimensions of critique).

8. Application of the detailed analytical results (if possible, the results might be applied or proposed for application) (Reisigl and Wodak, 2005).

Reisigl and Wodak are clear to point out that depending on the size of the research project some of the steps may be reduced or eliminated. For this research, most of the steps have been engaged with at least minimally with the exception of the pilot study (Step 5), which has been eliminated.

Dryzek's (2013) ontological assessment assists in giving an overview of the context of the discourse by asking what are: the basic entities recognized or constructed; assumptions about natural relationships; agents and their motives; and key metaphors and other rhetorical devices. These aspects of discourse are what people use to tell stories. They are drawn out of Dryzek's two dimensional model for environmental discourse as a result of industrialism, and how discourse departs from industrial discourse by being reformist, or radical, and prosaic or imaginative. From these, four classes of environmental discourse emerge: problem solving, sustainability, limits and survival, and green radicalism.

Finally employing Hodge's (2012) idea that contradictions are important and unavoidable, addresses some of the underlying contradictions that are apparent and important in the complex social and environmental systems as key to ideological effects. In other words, contradictions in discourse attract people to different views of the world.

An integral aspect of communication in the nature-human relationship is technology, and so the two studies include technology as a vehicle in the relationship and as a partial cause of many problems. Human created and developed technology is an interface between humans and nature, and it becomes part of the relationship and communication between

them. As presented in Aporta and Higgs's (2005) fascinating research on GPS and Inuit wayfinding, the idea of the device paradigm from Borgmann is relevant to my theory of discouragement. Borgmann distinguishes between a *thing* and a *device*, where a device makes easily available a commodity for consumption, but has a hidden relationship with the larger world. On the other hand, a *thing* is inseparable from its context, or world and requires engagement. So people today mostly interface with the natural world using technology (devices) rather than relying on direct contact with nature (things), and that the history and setting of the technological device used has become hidden, weakening the connection with shared and material surroundings. Aporta and Higgs further explain that Borgmann finds "this pattern is responsible for the social shape that the world has taken over the past three centuries and that was first articulated in the Enlightenment through the works of Bacon and Descartes." Enlightenment thinkers proposed that how reason works is to exercise power by extracting secrets from nature by using the tools of science. Borgmann says that using technology as a mode to take up the world seems to promise a reality that will lead to wealth and liberation through dominating nature. "This promise both guides and veils the construction of the modern world, and it has become the prevailing paradigm of contemporary life" (Aporta and Higgs, 2005, p. 740).

A related take on technology is the "social shaping of technology" where technology or a technological system is the result of economic decisions, war and war preparations, the history of the technology, and the influence of science and the technology itself (Mackenzie and Wajcman, 1999). This view of technology sits between technological determinism and social determinism and paints a more detailed picture of how technology and use of it develops in a particular society.

And so, communication through media technology physically and mentally distances the populace of users from the world environment and the use of devices hide injustices, both social and environmental, as a matter of concern. The media production, distribution,

and reception technologies work together with the ideas to expand the distancing, which may help explain the discouraging feeling toward communication about the environment.

The Studies

Among the sites of media discourse about the environment, the media and business are ubiquitous. In the news, nature is represented many times daily in weather reports and forecasts. I began to study TV weather after hearing a weathercaster say, “We’re gonna get you the sun out this afternoon.” Flabbergasted, I decided to listen carefully to what else they were saying during their weathercasts. But for most people, weather news is a background element, which makes it ideal for study. The weather itself is a part of nature that people have a hard time avoiding, and because it is so variable (in many places) it can become a source of frustration if not conflict for members of the audience. The weather is also an important draw for commercial news channels, and so it makes sense to look at competing stations and at how competition might affect the discourse as well.

The market provides an unstated backdrop for the ritual of weather reporting. It guides weathercasters to present the weather to meet different needs, because TV weather reports serve more than just citizens. Weather exists in the context of the market where the audience as viewer, citizen, and consumer (the center of power to make decisions) is rated by agencies, bought by advertisers, and attracted and held onto by media personalities.

At the same time the weather is one aspect of nature that humans are most often in contact with. Humans must confront humidity, wind, precipitation, temperature, and air pressure. Even indoors the body is subject to barometric pressure. Hair goes frizzy on humid days, arthritis flares up with an approaching storm, and allergies and sensitivities rise when air masses spread particles and compounds around the earth. The worst case is extremely threatening weather, which can leave behind completely destroyed property and lives. Some viewers become obsessed with the weather, others frightened by it, anyone can be frustrated by it, and everyone must take it as it comes, or better, enjoy it as they can. In

New England the weather is especially variable and extreme at times, and so the region seemed like a good place to pick up on the discourse of weather forecasts and how they depict the relationship between humans and nature.

In the zone of business, there are many areas of nature for products to be sold, especially for gardening and agriculture, but for urban dwellers GPS has become ubiquitous. It also, like TV, relies on a screen interface. Unlike other home technologies, say air conditioning, broadcast signals blanket the planet and it must face the user. TV and GPS fit together not only as devices, but with respect to technology (screen interface), ubiquity (popularity), and with roots in history (military). The hand-held device used out in nature seemed most likely to reveal the disengaging aspect of the technology and how it might impinge on the nature-human relationship. A main appeal of GPS was the change in its use over the years, which opens the possibility to explore whether the discourse changed to create such a demand for the products and system, whether it changed or supply moved from a few outdoors people to a general user type such as automobile drivers. It seemed possible that earlier users were mostly outdoors perhaps, encouraging engagement with nature to some degree, but later main uses were in a car, where one is shielded and divorced from nature and navigating in a city. The technology of GPS is quite complicated, and the later version seems almost magical in how it determines one's whereabouts on the planet. GPS is also futuristic, like the computer in the television show *Star Trek*, which verbally interacts with the user. One way to understand both scenarios better is by taking a critical standpoint to unpack the issues involved. A critical theory perspective points to dominance and freedom as two types of power (McKerrow, 1989). The approach is useful for looking at how the facets of power draw in the audience and the consumer and how they might resist. Finally, in Fairclough's style, the GPS study is also able to look at the change in discourse from the earlier to the more recent time frame.

The two studies take a vital first step toward understanding how mediated communication depicts the nature-human relationship and how that discourse is

constructed and maintained. The construction and maintenance arises out of the context and history of the communication, which differs in the two studies. The GPS discourse emerges from the military and primarily a business perspective that seems not to be specifically about nature, but takes place in relation to the globe and is limited by it, and so GPS is environmental by association. TV weather discourse arises from science and the news media, and seems to be directly about nature, but is also so common an occurrence ingrained in daily life that the depiction of the relationship may go unnoticed. Where GPS may imagine *consumers*, TV weather is part of news, a discourse that journalists like to defend as in the service of *citizens*. The everyday communication through news texts establishes a baseline of understanding for citizens about the nature-human relationship and, depending on what that is, has certain consequences for societies and even humanity. The GPS device is still a novelty and even a luxury, a better example for studying how consumers are invited to engage with or manage engagement with the world. As another everyday communication via screen “texts”, GPS established a decline of understanding for consumers about nature-human relationships. Again depending on what that relation is, consequences for the planet as well as for society follow.

It is beyond the present study to do ethnography of TV and GPS users. Future investigation related to this critical discourse analysis should address the response, reaction, and understanding of the TV audience members and GPS buyers. That part of critical discourse analyses will be a next step in this line of research. Another future study needs to look at discourse in texts beyond the white, developed West. If one is truly looking to make social change, research needs to extend more broadly. The justification here is that it is the white, Western world that needs the biggest adjustment to the nature-human relationship.

Another limitation to the methods has been the available material. Ideally looking at the actual GPS articles in newspapers, magazines would provide a richer source for analysis—to see the form (Barnhurst and Nerone, 2001), typographical, imagery and graphical elements—and the juxtaposition with other content especially advertisements.

But the original media sources are not readily available. The texts from databases do include text references to images that are helpful but qualitatively different from the actual images themselves. Using only media-produced texts about GPS also excludes consumer and citizen discourse, another possible next phase of research.

The TV station cases, selected purposely for close comparability, high market standing, professional quality, and situational constraint, take an initial gauge of industry practice. The initial case study is weak but results suggest the need for a national or international study, one that spans geographical areas with different weather patterns, media cultures and viewer expectations. Banter may also operate differently for weather than for other news, something to look at in the future. Informal observations beyond this study suggest not, but weathercasters could be acting with less restraint than, say, anchors. Other studies of the new long journalism have shown that prediction, a dominant feature of weathercasting, has grown throughout the U.S. news media (Barnhurst and Mutz, 1997). In other words, the weathercaster may exist as a freer but otherwise not atypical member of the news program cast. Despite its limitations, the case study highlights an under-examined area of broadcasting research. It opens the chance to study the discourse and rhetorical complexity on the part of the news media, their use of authority and entertainment, and their picture of nature in relation to science and technology.

The GPS research sought texts in published sources with substantial discussion of GPS that displayed the public discourse. A practical limitation was to stick with print and online news sources and to access the range of political leaning for the publishers. The publication center on the years 1998 and 2008 and reflect points in the development of consumer GPS usage and public discussion of the system. An expanded look at other sources of GPS discourse and along the entire timeline of its existence would be a rational expansion of the study. Still the current study is unique and can provide a jumping off point for future research.

The Analysis

What is being studied in the two cases is how media represent the nature-human relationship and the aspects of power and domination in the relationship that alienate people through discourse. The guiding principles for the analysis come from Fairclough (1992), and so the first task is to establish the context of the studies. Next are specific texts and their content or topics are analyzed. Lastly the discourse, the discursive strategies, and the linguistic means and realizations used in representing the nature human relationship are sorted out.

Each study is a little different, and here is how they sort out. The analyses start from the above foundation of Fairclough's context, text, and discourse and then employ a hybrid of Dryzek's ontological assessment of the environmental discourse present in the texts, Reisigl and Wodak's discursive-historical approach to critical discourse analysis, and Hodge's contradictions.

Dryzek looks at what entities are recognized or constructed, what assumptions are made about natural relationships, what agents and motives are identified, and what key metaphors and other rhetorical devices are used. Parallel to Dryzek is Reisigl and Wodak's discursive-historical approach, which works in four steps. First, the analyst "establishes the specific contents or topics of the discourse"; then the discursive strategies are examined, this including argumentation. Next is to look at the linguistic means, as types, and last is to examine the "context dependent linguistic realizations (as tokens) of the discriminatory stereotypes" (Reisigl and Wodak, 2005, pp. 101).

The discursive strategies address five areas of discourse (see Reisigl and Wodak, 2005, pp. 101, for quotations). These include: reference or nomination, predication, argumentation, perspectivization, framing, or discourse representation, and intensification and mitigation. *Nomination* identifies membership categorization, metaphors, metonymies, and synecdoches. *Predication* arises in "evaluative attributions of positive or negative traits and implicit or explicit predicates." *Argumentation* in language appears in certain forms of

justification. The strategies of *perspectivization, framing, or discourse representation* employ ways of “reporting, description, narration or the quotation of events and occurrences” that position points of view and express distance or involvement. Finally strategies of *intensification and mitigation* make some aspects stand out or remain hidden or less important. For example, when a meteorologist says “You’re gonna want to put on lots of sunscreen today” would be considered intensification, and where a journalist says that “The GPS system is free for citizen use” would be mitigation.

Other research has identified discourse as emanating from industry (Meisner, 2005), targeting consumers (Meister, 2001), and technologized (Vannini and McCreight, 2007), all of which seem to encompass contradictions—a common aspect of the modern, complex world and so each case study undertakes a search for contradictions as well.

Critical discourse analysis reveals power relationships and domination of others that needs to include the environment. It is a useful, varied, and established approach for studying media by treating messages as texts. The approach can be used to discern how the nature-human relationship is represented in the news and business media to understand what might be behind the discouragement audiences and consumers say they feel about the environment. While discouragement is a prominent theme, the larger issue is about how the relationship between humans and nature is depicted through various media interfaces.

Humans rely on nature for pretty much everything, but the dominant discourse often keeps nature hidden. The hidden aspect of communication is an important part of the Western alienation from nature. The non-obvious layer of discourse likely develops the U.S. view of the nature-human relationship. This relationship is exposed with a thorough analysis of the context that TV weather and business news of GPS occur in, a critical and ontological assessment of the texts involved, a visual analysis of the TV weather, and the identification of contradictions in the texts. These provide the resources to interpret what the discourse is and where it comes from.

CHAPTER 4. Weathercraft: Resisting Nature for Comfort

Weather is ubiquitous and so is talk of the weather. It is what strangers and friends talk about to get conversations started. It is what people seek as they begin their day of work, school, and play. Because it is so normal, it is an ideal form of mediated communication about nature to investigate. Who has failed to stop and look at a beautiful rainbow or amazing cloud formations?

Over history, hunters, herders, farmers, boaters, and most other pre-industrial humans observed and learned to “read” the weather. They relied on their observations of the sky, wind, and temperature as well as the behaviors of animals, insects and plants to predict the upcoming weather (Halford, 2004, p. 7). There were U.K. and U.S. weather diarists in the eighteenth century who tracked daily atmospheric conditions. Eventually U.S. weather forecasts began in the nineteenth century, the most familiar source being the *Farmer's Almanac*. Jump to the present and the weather is one of the few daily connections people make with nature. Anyone who goes outside comes in contact with weather in the atmosphere, but many people rely on the expert or professional to tell them what the weather is and will be over the next few days. The weather is often a matter of concern for people in different parts of the world—or an annoyance—for planning and for survival, but also as something to appreciate. The weather has become even more of a concern lately with global climate change and the associated occurrence of extreme weather events. What kind of relationships do TV meteorologists depict between the changing world of nature and a concerned audience?

Today the technologies of meteorology provide an impressive array of information (at an impressive cost). From up above the earth, human-placed satellites gather information from the surface of the planet for use in weather reporting and forecasting. In the United States, National Weather Service data from these satellites, a network of ground sensors (usually at airports) and a network of volunteer observers are available around the clock to

stations or commercial forecasting companies. The data is processed to provide images of different types, such as cloud cover, infrared, precipitation, temperature gradients, each with its own color palate and movement over time from a perspective miles above the earth (www.weather.gov). The vast amount of information gives a sense of thoroughness so that meteorologists seem to see all and know all of what is happening out there on and above the surface of the earth. Knowing can provide a sense of comfort by allowing people to plan their lives. It also provides a sense of control.

The current discourse of weather evolves out of the science and technology of meteorology. Commercial TV production draws on science, which contributes past discourse and rhetoric, feeding the professional training of journalists. Technology takes a dual role in the generation of weather data and television production techniques. Commercial television adds science and technology to a mix of advertising, market forces and standards, and production norms. Combined, these areas provide the background context of the relationship between humans and nature through the lens of commercial TV weather.

Finding a Niche in the Literature

In modern, industrialized nations, weather talk comes from newspapers, television, radio, the Internet, and mobile apps. But television weather, with live weathercasters and an array of audio/visuals, is still preferred by U.S. Americans who “are most likely to turn to local TV for weather” (American Press Institute, 2014). The most closely followed topic among all adults in the United States is the weather (The Pew Research Journalism Project, 2011). Elsewhere, weather information has been show to have effects on audience decisions, influencing the economy and public policy (Smith, 1993). Broadcast media and TV weather serve multiple entities—the citizens in a country, the advertisers in commercial television, the science of meteorology, the institution of news production, the occupation of journalism, and the government with concerns for safety—making the communication

complex and multi-purpose. To sort out and understand how TV meteorologists depict the nature-human relationship, a look across disciplines from rhetoric to journalism and advertising, to TV production, meteorology and technology, helps develop a picture of discourse in TV weather.

Discourse and rhetoric of science. The science of meteorology began in the early 20th century “and has been especially subject to market forces and military-industrial influences” (Ross, 1991, p. 228). In fact, the term front arose from the term battlefield, according to Freidman’s account of Bjerkne’s meteorological theory development (p. 228).

Western discourse surrounding the human relationship with the weather and climate has emerged in three main periods (Hulme, 2008). The first is that of judgment, when climate and weather extremes are a result of God(s) being unhappy with humans. As the distinction between God and Nature began to develop with the Enlightenment, the emerging of the science of weather developed new discourse around the Victorian era—one of pathology. Climates different from temperate regions were unhealthy and caused people to become less capable. The most recent development that began in the early 20th century is a discourse of catastrophe, so that anthropogenic climate change is a disaster waiting to happen. None of the discourses has ever gone away, but has varied in popularity. Culture is the source of the discourse, and as Western culture changes, a new discourse emerges. The categories of discourse are important to this study, but lack close analysis of texts.

Observing TV weather, using ideas from rhetoric to bridge to discourse, provides influential and readily available texts for analysis. Television weather is comprised of what rhetorical scholars would call the three personae: the weathercaster providing public communication; a second persona (Black, 1970) or audience of viewers/listeners; and the third persona (Wander, 1984), Nature. This third persona can also be thought of as the external world (Bell and Garrett, 1998), characterized by a scientific view of weather. Weather reporting, as a form of news talk, is mostly comprised of acts of assertion (van Dijk, 1988). The meteorologist, acting as a translator of science, simplifies and makes

understandable stories about the weather, which viewers may take as the truth. Making sense of meteorological information is the “most prominent rhetorical function” (Meister, 2001, p. 414) of weather reports, but it is also “the business of reflecting back what the larger culture wants to see” (Meister 2001, p. 419) in the bardic role assigned to weathercasters. At the start of television weather reporting in the 1940s, the rhetorical use of personification of the weather made forecasts accessible to audiences. Meteorologist Louis Allen began the trend with lines like “here’s our old friend the seventy-five-degree line” and “at the moment, no sign anywhere near us of that old bugaboo the ninety-degree line that kept us stewing for a while” (cited in Henson, 2010, p. 67). From another perspective, meteorologists provide a public service to help viewers learn about science (Wilson, 2008). But little if any research has been conducted on TV weather texts.

Market and Advertising. If TV weather exists as a public service and citizens seek the weather for comfort, planning, and even survival, then weathercasters need to provide the details. For that they might want to know who their viewers are. Still, weathercasters hardly know their audience says critical scholar Alan Bell, who insists they “are not just ignorant, they are uninterested” (1991, p. 89). At first, TV producers imagined a growing if undifferentiated public, but ratings research slowly made more demographic slices of the audience visible. TV stations also sell their viewers to advertisers, who want viewers to stay tuned and subject themselves to advertising. The weather gets viewers’ attention, which is what the broadcasters and advertisers want as much for their bottom line as for the public good (McManus, 1992). By rendering audiences universal, commercial television consequently makes them invisible (Kinneavy, 1971), introducing the contradiction of powerful and powerless public.

The predominant model for media in the United States is commercial in nature, providing information and entertainment interspersed with advertising, used to persuade consumers to purchase products and services. The complex of weather producers, consumers, vendors, and customers interacts to communicate for viewers a story about

nature that runs concurrently with the advertising. The two might even integrate at times such as when the weather sponsored by an allergy medicine during the pollen season and their logo is featured prominently in the on-screen graphics. As an economic asset, the weather draws viewers into other news and advertising, creating weather fans or weather citizens. “Within the gaze of late-twentieth- and early-twenty-first-century technology, the weather has been transformed from a simple indicator of natural forces into a phenomenon of entertainment. Today’s weather is not to be experienced so much as watched and consumed” (Sturken, 2001, p. 162). It is surprising that weathercasters and their stories have not been the subject of more academic research.

Professional Training and Market Standards. Television meteorologists in the U.S. are trained in science and journalism. In the quest to train future TV meteorologists, journalist handbooks focus on avoiding “real whoppers,” such as “the thermometer is falling” or “expect a widely scattered shower” (MacDonald, 1987, pp. 42–43). Meteorologists seek membership in organizations such as the American Meteorological Society (AMS), which “promotes the development and dissemination of information and education on the atmospheric and related oceanic and hydrologic sciences and the advancement of their professional applications” (<http://www.ametsoc.org/>). The AMS Seal of Approval can appear on screen during a weathercast when the meteorologist reporting has met the organization’s standards. The seal is a way of promoting their professionalism and the organization, heightening their credibility and status. But the AMS is quite up-front in its materials that it works for the private sector.

The organization seems deeply committed to science, but what about the public good? News media as public/private service in a democracy ideally provide information free from bias and prejudice to citizens who make informed decisions about their lives. Because weather reports are on local TV news shows, they are wrapped up in the local public service and public interest and may employ the rhetoric of democratic governance in local TV news. Audiences choose how they will move about and what they will do according to the

weather. They need to know if the weather can be harmful or dangerous on any given day or how the weather may have an effect on other aspects of life. The AMS is committed to connect science, service, and society using these goals—

to ensure that policy is built on a foundation of science; fostering an environment in which the government, academic, and private sectors in the atmospheric and related sciences and services work cooperatively to serve the public good; and broadening the appreciation of the advances that have been made in the atmospheric and related sciences and the value those advances can provide to the nation and the world.

(<http://www.ametsoc.org/>)

A close reading of the excerpt reveals a push for “the appreciation of the advances” and “the value those advances can provide” as technophilic and progress oriented. With science at center stage, weather reporting plays a key role in depicting the nature-human relationship, particularly because citizens’ beliefs “tend to correspond with the messages conveyed in the media” (Nelkin, 1995, p. 69).

In the 1970s, weathercasts began to employ banter between the meteorologist and news anchor(s) known as happy-talk, to increase ratings. “Built around the weatherman-jester,” the weather became “the emotional climax of the show” (Powers, 1977, p. 237). Other research on the TV weather market shows that newscasters belong to a mobile occupational group. Members move from one station and city to another, and their weak ties to where they work reinforce their ties to trade organizations, industry consultants, and journalism training manuals, which push weather reporting toward uniform patterns. The consistency of TV weather reporting contradicts the varying climates around the country. Research that looks at a particular locality can help build understanding of those patterns and hidden complexity behind them.

TV production norms and technology. The performance and pacing of TV news is designed to attract and hold attention. The technologies of TV give the weathercaster control over current and predicted weather imaging. Remote triggering of video loops of radar and other satellite sensor data, zoomed in maps, and forecast “slides” contribute to an almost cybernetic display, similar to scenes from in the movie *Minority Report* (2002) when Tom Cruise slides and shuffles imagery and data around on the screen. This suggests the weathercaster having control over the weather itself. Technology molded the reactions of a small TV audience, for instance during three days in 2003 as a front passed through the United States (Vannini and McCreight, 2007), raising the question of what takes precedence, the weather or the impressive technology used to gather data and present it?

A strong visual component emerges from decisions made by software developers, the National Weather Service, and broadcasting and meteorology technology standards. Current weather imaging on television employs a satellite view—a perspective from far above the land and the weather—a God’s eye view. For some of the show, the ubiquitous green screen technology allows a remote control to put things in motion as the weathercaster gestures over the maps of the earth and weather. The presenter switches loops and views to demonstrate the weather, while looking across the stage at an off-screen monitor to stay oriented. The human act of pointing and naming nature can both create a tighter bond and distance people more from an objectified natural world (Milstein, 2011).

Additional visual elements include color for temperatures, precipitation zones and rainfall amounts; arrows for wind and other forces; and icons for weather types with motion for the forecast along with details to help catch and hold the viewers’ attention. Other representations of weather and atmospheric conditions are shown in bright graphics, representing particular types of weather or weather elements.

The “look” of weather comes from science, hardware and software development (technology) companies, graphic designers, and TV producer choices about how to represent the earth and its natural processes. Computer software and hardware, as a subset

of technology, is used to present data for consumption by media and citizens. Computer modeling provides a range of forecasts that the meteorologists choose to adopt for the forecast, but they “are all generally looking at the same data” (Mandel and Noyes, 2012, p. 5). Vendors provide “clean” weather data and presentation graphics together as a complete customizable package (Jakobsen, 2012). Translated by the meteorologist into information that viewers can easily (or not) understand, the technologies of meteorology pre-configure what is said and shown on TV weathercasts into a familiar presentation style. The visual components of TV weather contribute to the discourse, and research is needed on this aspect of the weather.

TV weather has come from the complicated choices of content, style, information gathering and presenting. They shape a weather report and begin to explain the communication about the relationship between humans and nature. But the limited research into TV weather texts leaves open the question of how TV meteorologists’ depictions build a discourse of weather that citizens might find discouraging. The power relations need study, and injustices need exploring within commercial news weathercasts that tell the story of weather as an environment where humans and nature intersect.

Approach/Method

This research applies critical discourse analysis and discourse-historical to a previous mixed method case study (Doherty and Barnhurst, 2009). To enhance the environmental discourse aspect of the method, Dryzek’s (2013) ontological assessment is combined with Reisigl and Wodak’s discourse strategies. The analysis is further enhanced with visual analysis that describes and critiques the visual elements of the broadcasts.

To understand how weathercasters depict the nature-human relationship for the public the three main over-the-air broadcast stations in the Boston metro area were recorded on videotape for the week leading up to the Democratic National Convention of 2004 in late July (Doherty and Barnhurst, 2008). An upcoming media event (Dayan and Katz, 1992) was

chosen because it seemed likely to inspire the meteorologists to be on top of their game, so to speak, producing useful and accurate (as possible) forecasts. July is a time when people take vacations and do more in the outdoors, and so it seemed a good time to gather discourse about the nature-human relationship. The morning newscasts were chosen for recording to capture the time when people watch or listen to the news and weather to prepare for the day. Because early morning news is the least important of the three news broadcasts of the day, the time slot highlights the weather over the other news. The shows at 6:00 and 11:00 P.M. draw prime audiences for ratings, and the addition of 12:00 noon programming has not highlighted weather reports.

The videotape recordings were digitized and edited to include only the weather segments and banter between the weathercaster and the news anchors. For this study, the most representative broadcasts were kept for analysis, to include recordings from different days and stations. The recording for all weathercasts was reviewed, and the most typical and interesting from each station was chosen for close study: Weather segments from WBZ CBS-4 and WCVB ABC-5 on Thursday and WHDH NBC-7 on Friday. The forecasts all led into the weekend, when weathercasters assume people will be gearing up for spending time outdoors, and interacting with nature. The three provide a rich account of the discourse about weather.

Each segment was reviewed multiple times to generate field notes on the discourse. The field notes included observations, direct quotations, paraphrases, and interpretations to fill out the details. Notes detailed different discourse categories for each segment of each broadcast, along with the weathercaster (name and gender) and length of segments. The analytical categories included those from Dryzek's (2013) ontological assessment and from Reisigl and Wodak (2009). A separate aspect of analysis was for Reisigl and Wodak's intensification or mitigation strategy, which goes beyond any aspect of Dryzek, but is important for discerning how the nature-human relationship is depicted. The resulting analysis was then written up into the results reported below.

Observing the visual elements of the weathercasts generated additional observations, made through the same process described (Wodak and Meyer, 2009). While reviewing the recordings, I generated a list of the visual elements and combinations of elements used in each TV weather segment, including text, video, video with graphics, graphics, weatherperson and graphics, weather person and maps, weatherperson, weatherperson and anchors, facial expressions, gestures. The field notes describing observations, examples, and visual components in the weathercasts are also reported in the results.

Findings

The ontological questions developed by Dryzek (2013) and the discourse strategies types provided by Reisigl and Wodak (2009) guide this critical discourse analysis. Using a set of ontological questions provides understanding of how and why particular discourses have developed. Discursive strategies provide a similar guide, but lean toward a more or less intentional plan in the text that is “adopted to achieve a particular social, political, psychological or linguistic goal” (Reisigl and Wodak, 2009, p. 102) The other difference is that discursive strategies are positioned at “different levels of linguistic organization and complexity” (Reisigl and Wodak, 2009, p. 102) After that a visual analysis is presented of the visual elements encountered, which include an affiliate comparison, and descriptions of graphics, facial expressions, video and shots, gestures, movement, and appearance. A loose combination of direct, indirect and structured analysis (Colier, 2001) are use to help discern how these meteorologists depict the nature-human relationship.

Critical discourse analysis

Entities recognized and constructed: Reference or Nomination. One obvious entity that is recognized by the weathercasters is the science of meteorology. It is identified by a set of meteorological terms that are scientific and/or popular. The scientific terms are, for example, strong cold front, air mass, and dew point. The popular include sea breeze, fog,

rain, puffy clouds and the sky. Meteorologists have been naming tropical storms and hurricanes since the middle of the twentieth century, and the Weather Channel has recently begun naming winter storms across the United States. Weathercasts also identify temperatures, wind speed and direction. They mention tools they use like First Alert and Storm Scan Doppler radar. Another tool is the WeatherNet, a network of private weather stations (many located in high schools) that collect and report weather data to a central database for use by TV stations.

Another entity recognized by the meteorologists is location or place. The weathercasts mention regions as large as the Northeast or New England. They also mention parts of states such as Western Massachusetts, or Southern New Hampshire, the Cape (Cape Cod) or the Islands (meaning Martha's Vineyard and Nantucket). Smaller regions mentioned are towns like Framingham, and sometimes even smaller parts of towns or neighborhoods get mentioned. Another set of locations are geographic landmarks that can be generic, such as the beach, the mountains or mountain tops, the cranberry bogs, a part of Southeast Massachusetts where cranberries are cultivated. There are also specific places like the Quaabin Reservoir, Cape Ann, or the Berkshires.

A third nomination the weathercasters recognize is human activity. Sports are a popular pastime, and so they mention baseball and the Red Sox or other teams. They refer to "Beach and Boating" and things they imagine citizens have an interest in, such as when high tide will occur, what the ultraviolet (UV) index is for the day, and what the waves on the ocean are like, as in "the seas are three to four feet." One short segment is devoted to commuters, and usually a traffic portion of the news deals with delays during "drive time."

Weathercasters also name people or the public as an entity. There are the typical "we," "you," and "us." The meteorologists say the names of the news anchors in their interactions and hand offs. One meteorologist greets his audience with a "Hi Everybody!" and another, when talking about the unhealthy air from smog refers to "people with respiratory

disorders.” The ABC-5 weathercaster David Brown talks about “folks [who] are not fans of this real hot stuff,” meaning the warm temperature and high humidity.

Of course the weather reports also refer to the entity of time. There are the different days of the week, periods of the day, and the generic day with a variety of adjectives, like *nice, good, even a murky, gray* start to the day.

So the key entities in the weather are meteorology, places, activities, people, and time, all of them similar to the entities of discourse in the other segments of a newscast. Meteorology offers scientific and popular weather terms that may appeal to different audiences. The places provide a familiar nearby connection for them and help locate them in relation to the possible weather to come. The places also make some audiences invisible by referring to a place as a viewer collectivity. The activities mentioned are quite limited in scope—baseball, boating, the beach, and travel—leaving out those without means to recreate. Non-commuters such as retirees are left out when the presenter turns especially to driving to work, which seem to be the extent of things the viewers do in the summer, at least in the weathercasters’ language. People are grouped into the first person plural, an inclusive move, or as sufferers of allergies, and other respiratory “disorders,” an exclusive move, singling them out. Time is, in a sense, the driver of things, it is limited, and what weathercasters use to measure the progress of the weather throughout the day.

Assumptions about nature relationships. A particularly difficult task in determining the results is discerning the assumptions weathercasters make about nature relationships. Assumptions can be implicit or explicit, and they can be based on facts, can be analytical, or can be based on values.

The CBS-4 broadcast relies on the assumption that if it is a clear, calm day then nothing is going on; no weather is happening. This move can be thought of as identifying weather as active, changing, and disruptive. Another assumption Barry Burbank, the CBS-4 meteorologist suggests is that summer weather in New England is often uncomfortable. Also relating to comfort is the assertion that people need cool weather to sleep well or that

hot and humid weather prevents people from sleeping at night. A further assumption has to do with time. The meteorologists mention repeatedly that it is unfortunate that it might be raining on Saturday, pointing to the assumption that people have the day off work and plan to do something outside.

The ABC-5 weathercaster David Brown promotes another assumption, that audiences need protecting from weather. He also speaks on the apparent assumption that good weather is like conditions in one's living room, 72 degrees, brightly lit and low in humidity. The discourse is about comfort again. Another assumption by this weathercaster seems to be that besides numbers (measurements) people want descriptions of the weather, and so the meteorologist plays the role of interpreter.

Chikage Windler, the weathercaster from NBC-7 seems to assume that nature fails to meet humans' expectations about the weekend or the living room. It also assumes that the weather can be difficult or mischievous and that it causes problems for people. One key comment was from the female news anchor of NBC-7 who began, "As for the weather, I don't know, humidity gremlins again today?"—a reference to the unexpected or unexplainable characteristic of the weather that the weathercaster might agree.

These weathercasts engage in a discourse of weather, which assumes that the weather makes people uncomfortable and that an ideal of sunny and warm also translates to no weather at all. The assumption that people need protection from the weather emerges when the weather fails to meet expectations—for what it should be or when it should happen.

Agents and Motives identified (including Argumentation and Predication). In the weather forecasts, agents are things that take an active role and produce a specific effect. Motives are the reasons for doing things, also difficult to ascertain. Argumentation provides the set of reasons used to persuade people of the correctness of the story. Predication is used to state, affirm, deny, or assert something about the agent and their motive.

In the weathercasts, nature, or more specifically an aspect of the weather, is an agent. Some typical phrases about agents from a weatherman include "a sea breeze will keep it

cooler at the coast” and “there will be a sea breeze, so you’ll find a little relief” (from the heat). But this same weathercaster engages in something different, describing the weather as trying to do something: “We’re stuck right in between these two features, one offshore *just trying to bow back toward New England*, the other one *trying to approach from the west*.” If only he could know what its motive was. This actually refers back to ancient discourse of weather as an expression of God’s will. The other male meteorologist uses similar language with the phrases, “so this front comes marching in our direction” and “this front continues to sit on top of us.” That sort of phrase anthropomorphizes the weather. In a way it sounds almost confrontational, or at the least intentional on the part of the weather.

This weathercaster also makes people the agent when he uses phrases like “we’ll hold onto a lot of clouds” and “across Western Massachusetts, we are holding onto a little bit of rain.” He suggests “we” have some control over the weather, but it is unclear who that is, just the meteorologists or everyone. Judgments come into play with some of the persuasive language used. For example, the same weathercaster says, “unfortunately the weekend is going to be spoiled by a lot of clouds and some showers.”

The female meteorologist Chikage Windler from NBC-7 starts her forecast by telling the audience “Remember, I’m just the messenger,” so that her role as an agent is to deliver the message. She does not mention that she has written these messages and had to make many choices, conscious or not, about how to tell the story. She starts the story exaggerating and anthropomorphizing: “right now it looks like there’s a strong cold front gonna whip into New England then sit and stall over Southeast Massachusetts.” By contrast, the ABC-5 meteorologist said the front was going to inch its way here. She continues by focusing on the difficulties of weather, as in “the Cape is gonna have a little trouble again because you gotta struggle to break out of the fog that is ever present this morning.” The NBC-7 meteorologist continues the talk of people as the agent having control over the weather with, “later in the day we will burn off the fog” and “we are heating it up, another 80-plus degree day on the way.” In her concern for the public although not with the weather

per se, she says, “Air quality is another issue, you’ve probably noticed the smog out the last couple of days—not healthy for people with respiratory disorders.” Her take on smog is similar to saying “the mosquitos are out” and so you might be at risk of getting bitten.

Not surprisingly, the agents are nature, the public (including the meteorologist), and the meteorologist. Motives are absent except for people to be rational pursuers of their own interests in avoiding or diminishing certain aspects of the weather. The argumentation and predication are subtle in the weathercasts, but take the form of the expert providing scientific evidence. The weathercasts also use rhetoric to persuade the audience to take the expert’s perspective.

Key metaphors and other rhetoric (including perspectivization, framing or discourse representation). TV meteorologists seem to have a few options when presenting the weather and the forecast. One is to play it straight with little emotion or exaggeration. Another is to ham it up a bit telling a story that might be interesting or entertaining. Still others become emotional, or excited, revealing problems, dangers, and concerns for the public who might be exposed to weather conditions that day.

The pattern of rhetoric and metaphors includes a set of catch phrases like “clean slate” and “clean sweep” referring to the Doppler radar showing no signs of rain. Again the idea of nothing emerges as appealing. Other phrases include “steam heat” and “summer sizzler,” referring to the heat and humidity, by way of household phrases for ironing and cooking as activities the audience can relate to.

Meteorologists use synecdoche when they mention towns like Framingham, as in “Framingham, you’ll have a lot of fog today,” meaning the people of that town. A similar example of this happens when mentioning “the Cape and islands,” followed by “you have a dense fog advisory.” A way of being efficient with words again disguises the audience in a way.

Meteorologists use the personification of the weather widely. They talk about a front “trying to bow back toward New England” or “trying to approach from the West.” One

meteorologist even predicts that the front will “sort of stagger through the area.” There is the reference to “lonesome showers” as well. The ABC-5 meteorologist engages in talk about a front that marches in or continues to sit on top of the public. He says that the front will “slowly inch its way in our direction and hang out.” The NBC-7 weathercaster exclaims, “Sunday struggling into the upper 60s?” anthropomorphizing the day to imply that as an entity it will need to work hard to get the temperature up and that this is unusual.

The weathercasters frame the weather as a problem. A subtle reference is, “we’re stuck right between these two features” or “We’re gonna see some showers Saturday, unfortunately.” The ABC-5 meteorologist tells the viewers, “Unfortunately the weekend is going to be spoiled by a lot of clouds and some showers.” To give him credit, he does conclude with, “I wouldn’t change any plans.” He also reassures listeners at one point, talking about a front moving in, that “we are protected for our daylight hours with a ridge of high pressure.” On two of the stations even the news anchors join in to support the problem focus of the weather. One phrase stands out from the ABC-5 the anchor, “things are a changing I’m hearing...yeah we’re gonna check it out for the weekend, maybe some problems.” But the NBC-7 weathercaster seems to fully embrace this take, first telling the Cape of the trouble viewers will have to struggle out of the fog, and then talking about the possibility of thunderstorms. She says, “we shouldn’t have to worry about them for today; it’s tomorrow when we’re stuck with a few showers.” When this meteorologist reports on some environmental conditions, the problem focus continues.

The rhetoric and framing used by the meteorologists mainly personify nature into a being that causes trouble for humans (who are subsumed into areas or locations).

Intensification or Mitigation. This aspect of discourse introduces the words and phrases of the speaker/writer raising or lowering the importance of the message. Some of the phrases included may be familiar (from previous sections), because words and phrases often play multiple discursive roles in the story being told.

The first aspect of intensification was found in the names of the weather segments. CBS-4 has the title “First Alert DOPPLER” with the tag line of “NEW ENGLAND’S MOST POWERFUL RADAR.” The ABC-5 show is called *StormTrak 5*. The names set an expectation of stormy or dangerous weather. NBC-7 is simply called *Weather*.

The Channel 4 meteorologist mitigates one situation when he tells the audience that “the humidity will be moderate to high, but it’s not truly tropical, or truly oppressive like it can be this time of year. So that’s the good news as well.” He continues later about how fortunate it is that the heat and humidity are “not sultry like it can be some nights in July.”

Chikage Windler from NBC-7 is in mitigation mode when she tells the audience she is “just the messenger.” She intensifies the situation for listeners with other phrases. She says, “there is a huge change in our air mass come tomorrow for the weekend.” For listeners who plan to recreate for the day, the line “if you’re going to the beach, plan on lots and lots of sunscreen” is a bit of an exaggeration and brings up the image of squirting tube after tube of the stuff on the kids. Another example, when she talks about the day being “another summer sizzler,” likens people to steak in a frying pan.

Other methods of intensification are the use of visuals and music. The introduction screen when the weather comes on can be dramatic. When combined with an attention-grabbing sound or music clip, it can make one’s head turn toward the screen.

The extreme case is the ABC-5 StormTrak introduction. It begins with what sounds like a clap of crackling thunder and a horn fanfare, with red, yellow, white, and purple roiling clouds obscuring a faint shot of some automobiles coming toward the viewer, as the station’s black, white, and red logo rotates into position. On the other two stations, identifications are more subdued with just shiny graphics and some unobtrusive music.

Mitigation, and even more, intensification are accomplished in the broadcasts through the use of on-screen text, words and vocal inflections, other sound and music, and graphics or visuals. Mitigation comes from the lack of showing the weather outdoors, and the

preponderance of graphic animations and satellite imagery. Weathercasters can manipulate the drama of the weather story told by what different things they choose to show.

Visual Analysis

The text is one aspect of the discourse in TV weather reports. In the medium of television, the audio and visual aspects of the communication play into the storytelling. Market competition leads to visual branding and approaches to presenting the news that differentiates the three TV stations under study. NBC-7 follows an emphatic style, CBS-4 follows a reserved style, and market leading ABC-5 follows the middle of the road, with partly reserved and partly emphatic style. A full audio analysis is beyond the scope of this research, but a basic visual analysis is not. The analysis looks at how the three affiliates compare in their general visual style. Then the graphics are presented and discussed, followed by a look at the facial expressions used by the meteorologists during the forecasts for the role they may play in communicating the weather (Friedman, DiMatteo and Mertz, 1980). The video and shots used are also analyzed for their contribution to the discourse, and finally the weathercasters' gestures, movements and appearance are parsed for their involvement in depicting a relationship between nature and humans (Tankard et al., 1977).

Affiliates. Considering production styles, all three stations have roughly the same technology available to them, and they seem to use it pretty much the same way. Moving, shiny, 3-D computer graphics introduce the segments and are used in many of the segments along with cartoonish weather icons and stylized 3-D text. The stations all use Chroma-keying so that the meteorologists can interact with the weather maps to show the past, present and future weather.

Competition and standing in the market seem to play a role in the visual style of a station, but individual meteorologists also play a part. As far as intensification goes, ABC-5, the market leader, visually appears as the most dramatic of the three with the most banter between the weathercaster and the news anchors acting edgy but reserved. CBS-4, the

laggard in the market, is the most reserved in visual style, with little banter. They conserve resources and keep a steady, middle-of-the-road style. NBC-7, the upstart, is somewhere in between visually and with banter, but rhetorically is more dramatic, trying to gain attention. Accuracy or exaggeration reflect the station's style and market position, but may also depend on whether the meteorologist is male or female.

Graphics. Weathercasters use computer graphics to represent the weather and help tell the stories they manufacture. High-tech graphic animation is used to display text and measurements with graphic elements either stationary or animated in some way. Hybrid graphic backgrounds incorporate video or digital animation of clouds, sun, or rain behind other information. Presenters also use past, current, and forecasted weather and radar maps. These take on the look of a business presentation with graphic crossfades, swooping stylized 3-D text, and animated text that glows, pulses, rains, or swirls with fog. The 3-D terrain maps with virtual weather animation allow the weathercaster to present a flyover of the area, recreating the weather in video-game style for viewers. They can change the direction and altitude of the view and choose the background "weather" to show viewers what the weather is or will be like. If thunderstorms are in the forecast they are sure to see those flickering flashes of lighting bolts that strike out of the dark, along with ominous virtual clouds.

Graphics add liveliness to the program. The producers use colors and movement throughout it. Words are animated, moving around the screen and acting alive at times to simulate or represent nature. They give an active feel to the show along with multiple animated weather icons placing atmospheric occurrences around the weather game board that is New England. The graphics in the TV weather reporting clearly lend a video game element, placing the forecast directly in the mold of entertainment. The visuals also take on a corporate or even academic presentation look and feel, possibly making it appealing to the many audience members who know that all too familiar style of presentation software.

Facial expressions. The NBC-7 meteorologist Windler is the most expressive and emotional presenter of the weathercasts. At times she seems truly hurt and disappointed by what the weather may bring. Both of the men are more reserved and matter of fact about the weather, acting out their assigned gender roles well. Still they do use facial expressions, raising eyebrows, and smiling to communicate normalized responses to possible weather scenarios. Dave Brown from ABC-5 is interesting in the way he nods for almost everything he says, whether it is yes, no, good, or bad. Facial expressions, like the graphics seem to follow each station's market standing.

Video and shots. Video in the telecasts shows either the world outside from a stationary rooftop camera or the meteorologist and news anchors in the studio. Each of the stations employs some live video. NBC-7 uses more outdoors shots than ABC-5 and CBS-4. Some of the video is used as a backdrop to the information displayed for a particular segment. For instance, a segment on today might show the temperature and main condition (like warm or rainy) for morning, noon, and evening. When the weathercaster or the news anchors appear, the studio and all of the technology in use, particularly the many screens for the weather or for news feeds come into view, lending an air of importance, abundance and all knowing.

The use of Chroma key or green screen technology results in surreal imagery of weathercasters standing (on something) with the earth floating behind them. They are shot from the mid thigh or waist up so that the viewer can see their gestures while they are putting the weather into motion. There are occasional close ups, but mainly medium and medium wide shots. The similarity to segments from kids shows when the host is doing something fun or scary in some other setting (like water skiing or in a cage with a tiger) is uncanny. Live video gives an authenticity to the weather news, confirming what the experts are saying about the weather, and reinforces their authority and knowledge. At the same time the use of Chroma key makes a strong reference to entertainment.

Gestures, movement, appearance. Weathercasters point a lot. They point at towns, temperatures, fronts, and storms. This may seem trivial, but the pointing and naming is

typical of nature and science experts, or even tourist guides, distinguishing the “differences” in the world (Milstein, 2011). They use sweeping motions to acknowledge the extent of a storm or front and where it will move, at times giving the impression that they move the weather around. They use their hands to express themselves as they tell the story of the weather and how they feel about it. When weathercasters work in front of a green screen system, they appear to be standing in front of the map of the area (or floating in space well above the earth). To allow viewers to see the information they are pointing and gesturing about, they step around the floor, forward and back and from one side to the other, always looking at the monitors showing the map so they can stay oriented and point at the right bits.

The weathercasters subscribe to the professional news style of clothing—suit and tie for men, fashion top or blazer and skirt, plus make-up and stiff hair for women. This is not clothing bought at Wal-Mart or T. J. Maxx, because TV meteorologists are minor celebrities in their area, are well paid, and must look professional and crisp.

The role that the visual takes in the weather discourse can be characterized as part entertainment and part educational. The weathercaster comes across as the professional entertainment host or hostess who guides the audience through the fun-house game of the weather. They interact with computer graphics and float in space above the earth, helping the audience understand the diversity of weather from the comfort of their home.

Understanding and Why It Matters

A morning TV weather ritual defined by a network of relationships feeds the discourse of weather in American culture. The entity of TV weather is a result of the interaction of capitalism, entertainment, and the political system of the United States, with the earth and the bio-geo-physical systems, which includes human beings and their socio-cultural understanding of their relationship with the earth. This network contains a set of power relations and social hierarchies. Different zones and entities are involved in the network of

relationships: the weather and aspects of the weather; the audience, with needs and activities; and the weathercaster with training, tools and messages. The location and time aspects of life that connect with the weather—when people travel to work or play on the weekend—are also involved.

TV meteorologists do depict a nature-human relationship and build a discourse of commercial TV weather. Power relations appear and injustices occur when commercial news weathercasters tell their story of the weather. A useful way to discuss the relations and injustices is by looking at the three key rhetorical entities in the mediated communication act: the audience, the weathercaster and nature as the weather.

The Audience. People of the audience take an interest in the weather for many reasons. The Boston area weathercasters reference their audience in ways that are quite limited in scope. It might be in a greeting, as a group, or in reference to comfort and enjoyment or protection and safety. Viewers are referred to as part of a community by the use of “us” or “we,” making everyone watching part of what is going on. They are also mentioned by way of select towns, regions, or locations. Geography brings people together in the experience and orientation toward the weather and nature.

Meteorologists mention some organizations, like schools, and weather tools, like the *WeatherNet*, bringing school children into science and the mix of community and consumerism. In a sense the mention promotes how schools are enlisted in the science of meteorology by revealing their participation in the network. There is a nod to the valuable community service work being done by the meteorologist, which still reinforces the hegemonic aspect of science in weather forecasting.

The meteorologists connect the audience to the weather and nature with activities. Watching the broadcasts one might think that the only thing people around Boston do in the summer is go to Red Sox games, the beach or boating, commute (by automobile) to work, or deal with allergies and respiratory problems. Of course meteorologists cannot

mention everything people do outdoors, but limiting the discourse in this way sets up a power dynamic by making some activities preferred and many others non-existent. So why do the stations promote only these activities? There is probably a seasonal aspect, but economic factors are a likely reason. Boating, major league sports, and Big Pharma all contribute to the economy, some with local advertising. They also degrade the environment through fossil fuel use, solid waste production, and pollution, aspects that are rarely mentioned. The weathercasters may mention other activities, especially in other seasons (such as skiing in the winter), but the likelihood of hearing about the local weather for activities like bird watching, hiking, or gardening seems low for lack of backing industry. Cross-promotion keeps the money flowing, but limits the diversity of activities related to nature to nearly a monoculture. Commuting by automobile falls into the same zone of activities, highlighting one over others, one that pollutes more (a fact that affects weather but goes unmentioned), and keeps local dollars circulating.

Another way that the audience is tied to nature in the weathercasts is in relation to protection and comfort. The weather comes across as a point of control for people (including the weathercasters) because by knowing what is to come, people can plan their lives for safety, enjoyment, and economic benefit. Evidence of this mind set is found in the National Weather Service “Weather-Ready Nation” program (www.weather.gov) and in the Weather Channel saying that naming storms makes them easier to follow and helps people be more prepared. The safety and comfort riff connects to the idea of the “weather citizen” (from Sturken, see Fleetwood, 2006), who tracks the weather as part of civic duty. But Sturken (2006) also proposes that—

Weather prediction is in fact a very limited kind of knowledge that promises protection and reassurance yet which bears no relationship to the social infrastructures that would ensure preparedness. Indeed, it could be argued that prediction not only has little impact on people’s daily lives but serves to screen out the politics of disaster. (p. 3)

Weather prediction itself has an impact on people's daily lives by drawing attention to disasters, specifically weather disasters, as spectacles rather than, say, climate or environmental or social disasters. The choice makes "the weather" a double-dupe for the audience, doing harm while cloaked as a civic duty for an attentive consumer.

Weathercasters train citizens in developed nations to see good weather as sunny and 70 degrees Fahrenheit and bad weather as pretty much anything else. When it is "a nice day out there" the weathercasters may tell people to get out there and enjoy it. If not, then the common guidance to deal with this "problem" is to bundle up, bring the umbrella, or just stay home where one really can control the weather. A problem-solving approach to the weather rings of Dryzek's *problem solving* discourse of the environment that applies a quick fix to the status quo, rather than taking a different approach, like changing one's attitude toward the weather.

With industrialization, people moved from farming outdoors to factory and blue-collar work indoors. Television blossomed after World War II in the United States, and so to report on the weather would have less to do with people working outside (of course some still do). Today TV weather is truly environmental, for when people travel to and from work, enter nature for leisure time on weekends or holidays, or move in automobiles or airplanes and face the chance of delay. Of course people do get outdoors, and the weather reports often mention that people plan ahead for activities. When they rely on "good" weather and the actual weather is not "good," then weathercasts imply that it is the weather's fault. The weathercasters promote an image of weather being unreasonable and not conforming to or cooperating with one's weekend schedule.

As humans move indoors for much of their lifetimes, they adapt to the narrow range of indoor weather conditions. The adaptation and a human-made environment makes humans more vulnerable to extremes of weather as well as more reliant on resources to control indoor environments. Weather forecasters depict the audience and their relationship to

nature in two main ways, by either enjoying or resisting. Binaries tend to make invisible any other options, making an alternate choice of “just going along with it” and accepting the randomness of weather unlikely. With this particular binary the possible range of enjoyable weather is narrow, leaving a wide range of weather to resist. The resistance to nature may then infect other interactions with the natural world.

Protection and comfort are concerns when the audience is defined as people with respiratory problems or allergies. The discourse again sets up nature as the entity causing the problem. The meteorologist helps solve the problem by reporting on the mold or pollen “count.” Of course the next ad up at the break might be from a brand-name allergy relief medicine, maintaining the consumer status of the audience.

Instead of stepping outside to smell and feel the air and moisture or looking out a window to see what the clouds (if any) look like, people rely on a weather story told by an expert, who uses different technologies (measuring instruments, satellites, TV cameras, computer graphics, audio/video processing) to predict and share the weather in ways that meet the station’s and advertiser’s different needs. At one side of the network of interacting entities, the citizen is marginal and has circumscribed rules as either enjoyer or resister of the weather. Instead of being humans engaged and in touch with the environment, the audience is placed in a present and future focus of potential for pleasure, satisfaction, and consumption.

The Weathercaster. The weathercaster is the central character, balancing roles of trainer, entertainer, and messenger. Market forces play a role in the visual style of weather that meteorologists present on a particular stations. Uniformity comes from the professional aspect of the work, made clear from the software they use and their on-screen look, dressed in a suit and tie or professional outfit for women. Commercial distinctions appear from competition in the market, and the style of a station plays into the narratives that they generate for the consumer/citizen.

As trainer, TV meteorologists use science and statistics to explain a threatening outside world, and in essence teach the viewing public how to interpret the science of weather. Weathercasters try to make understandable the scientific data and jargon, but also aim to entertain (and retain) their audience, by turning the weather into something familiar, giving it purpose.

As entertainers, they are performers and verbal storytellers, using emotion and motion, nearly singing and dancing their way through the forecast. Verbal inflections and facial expressions are sometimes exaggerated, like the emoting of neophyte actors in a high school play. The abundance of pointing and naming that weathercasters engage in suggests that they liken the weather to an animal or plant that is different from humans, again distancing people from it, and “reifying human-nature binaries” (Milstein, 2011, p. 4).

As the messenger, the weathercasters in this study make bold statements at times. For example, saying “we are going to hold on to these clouds for most of the day” suggests that people play some part in controlling the weather. TV meteorologists rely on technology and computer graphics in a TV studio to communicate visually to the public with precision and authority. Their message is to help people avoid or diminish certain aspects of the weather, causing concern enough to keep viewers attentive, in effect getting them to stay tuned and watch the advertisements.

The visual aspect of TV weather shows the professional, in control of complex information and trying to make it “easy” to understand, and also engaging and even fun. Visual communication theory implies that video is a stand-in witness (Griffin, 2001), allowing the weathercast to provide its claims of truth through faithful and honest-appearing imagery. Animation, maps, and various graphics suggest technology and science. The use of imaging on the screen produces a visual discourse in the choices of colors and spatial arrangements of weather areas and patterns (like medical imaging) and offer visual precision that is not always accurate. Specialists occupying the position of power to

interpret and explain from a performative stage, allows control and agency, with little improvement in weather forecasting (Cartwright, Penley and Treichler, 1998).

The weathercaster appears situated in front of a map or animation of the region or world, giving a God's-eye view of the weather. "So habituated are we to this convention, that we very rarely consider how unusual this view is, and how it creates a point-of-view that is specifically non-human (and depopulated)" (Sturken, 2005, p. 1). The view distances people from the natural world, showing a building, roadway, litter, and people-free view of the surface of the earth. The stripping away of complexity promotes an "everything is OK" take on the world, allowing citizens to adopt their role as guilt-free consumer.

The weather is a powerful whirling, swirling mix of air and moisture, set in motion by the heat of the sun and earth, warming and spinning of the planet, and dodging of topography. But in "The Weather," it is represented by numbers, words, and moving colors on a screen combined by the meteorologist to tell a story that keeps people on their toes, in defensive mode, ready to respond to nature's unexpected challenges, by staying tuned (and being subjected to more advertising).

Nature. Watching the weather on TV effectively keeps people from being outdoors, mentally and physically, and experiencing it with their own senses at least at that time. TV weather may act as a surrogate for audience members and supply some needed connection to the natural world, but the weathercasts show very little of the actual outdoors.

The view of the earth from above in weathercasts provides enough distance to show the weather before and after, but at the same time distances humans more from nature. This view is not how people experience the weather on the ground. In fact little about the TV weather has any resemblance to nature. But the weather as "Nature," in the morning news weather reports of the study, is represented as threatening, in a dramatic story that brings to life a developing set of scientific data. Weather is depicted as an agent that is purposefully doing things to disrupt human activity. And despite the meteorologist's effort

at prediction, weather comes across at times as unexplainable and uncooperative in the weather segments, becoming an adversary, which may distance people further.

The specific weather details come from human observation, measurement, identification, classification and naming—the science of the earth’s atmosphere. The weather is also represented by the use of atmospheric mathematical models to predict how the weather will change. Before science became the official way of knowing the world, human observation and belief reigned. People lived in nature and its variability. Once science began to represent Nature, it removed people from the intimate relationship, by mediating nature through technologies.

The weather (or nature) itself in these morning forecasts is personified into a beast (referred to as “this thing”) that sits on people, and hangs around to make people miserable. Weather personified as an animal, troops, or an unruly teenager set up conflict between people and the weather, again distancing people from nature. These metaphors suggest emotional strategies for dealing with the discomfort that bad weather might cause. At the same time, it discourages people. People are disengaged from instead of incorporated into nature.

Nature is also assigned the characteristic of being dangerous. People are told they need to put on “lots and lots of sunscreen” on hot, sunny days, and “we are protected” from a weather front and similar phrases depict danger to the audience. Other items like Allergy Alert or Dense Fog Advisory add to the dangerous and authoritative aspects in TV weather. Names like First Alert and Storm Scan lend urgency to the forecast. Even the name of one show, *StormTrak 5*, makes an assumption of never ending storms, the hard k sound resembling the crack of thunder heard in the intro music.

Conclusion

Every day the weather people tell stories that contain depictions of the weather using language and visuals generated by a range of technologies. The representation of nature

through stories contributes to one's sense of reality, and when one acts on that representation, becomes "real" in the consequences. If people are encouraged to think of the weather as an unruly teenager, causing problems for commuters or an aggressive animal purposefully slamming a string of thunderstorms into a city, it becomes clearer why people become discouraged or disengaged with nature. The joke when people on the Gulf Coast were telling hurricane Ike to go home, because Tina was not there, viewers cursing winter storm Astro and the "polar invasion" of 2014 contain a hint of truth: that they have accepted weathercasters' view of the nature-human relationship. It is not a happy one, but tends toward conflict.

This research provides important understanding into how TV meteorologists, the main source of discourse on the weather, depict the relationship people in the United States have with nature. Despite the increase in the use of mobile devices and the internet for weather, television weather is still the main source of discourse of the weather. Ways to extend this research might include interviews with weathercasters or TV meteorology educators to get a sense of how they think about the nature-human relationship and their roles and responsibility to the citizenry. Their views would add a rich layer to the critical discourse analysis. The same goes for the audience. Research that delves into how viewers respond to TV weather would provide some insight into the citizen's experience. For example, the comments section of web pages might help make the audience more visible. A national and even international perspective would also be an important addition, looking at the weather discourse in different climates and countries. Another angle would be to analyze the advertisements interspersed through the news broadcast to see what connections (if any) they make with the weather and nature. One might also look at male-female roles and interaction and the connection to the domination of nature and the domination of women. People routinely rely now on stand-alone weather apps on smartphones and tablet computers for instant local weather prediction, bypassing the human presenter altogether.

This would be another area of interesting research to expand into, like the research on GPS (see Chapter 5).

To understand how the discourse of TV weather might contribute to environmental alienation and resulting discouragement, this study examined how weathercasters depict the nature-human relationship. The discourse of morning TV weather from three Boston, Massachusetts, broadcast stations emanates from the commercial media sector, informed by science, journalism, and entertainment, for an imagined audience interested in comfort and resistance. The stories told by the weathercasters use complex satellite and computer technologies to represent and control dangerous nature, through prediction and conflict. The presentation of the stories aims to impress and engage the viewers and keep them watching, making it possible to expose them to the advertising the station sells between segments.

The pattern that broadcast television developed was adopted and expanded by the Weather Channel. That viewers watch the Weather Channel for entertainment is indicated by the number of “shows” in the line-up, such as (now defunct) *Storm Stories*, *Strangest Weather*, and *Highway thru Hell*.

The system reveals a conflict between a private enterprise trying to supply a public service to educate viewers about the natural world so they can act, but ends up making them more reliant on the TV weather broadcasts and the market, and more fearful of nature. It appears to distance the public further from the natural world, physically by substituting a “show” for direct experience, and mentally by promoting values that position the weather (and nature) as a force of conflict and discomfort.

As audiences migrate onto mobile and online media, the problems with TV weather spread. The weathercaster's weather report expands onto other media that take it out of the temporal and into the virtual world. But the result of discouraging communication remains and perhaps grows stronger.

CHAPTER 5. GPS: Positioning Humans in Relation to Earth

An outdoor retailer in the late 1990s provided training on Global Positioning System (GPS) units. The focus was to use them when hiking, boating, and a few other outdoor activities. Jump ahead ten years and visitors to New Hampshire, express mail delivery vans, and service truck drivers get lost trying to find rural houses because they followed their GPS instructions and not the directions given to them. The best story was of the guys delivering a bed who obeyed the orders of Miss or Mr. GPS to take the shortest route, four miles on a closed woods road, driving over huge boulders, denting the frame and gas tank of their box van, but finding the place! The stories multiply of GPS users, nearly all drivers, trusting the device over their senses and experience of the natural world and ending up in a ditch, creek, or cliff edge.

Nature-human interfaces are a type of environmental communication. A common definition of environmental communication is that it seeks to change public opinions, attitudes, and beliefs (Cox, 2006). Some environmental communication seeks to maintain public positions. Environmental communication seeks action for change or to resist change. Discourse also does just that, and so looking at the discourse surrounding GPS, a nature-human interface, may throw some light on a wider swath of environmental attitudes that the media are promoting. The hegemony of the economic and consumer paradigm is well known, but here is a case the veiled relationship with nature can be exposed.

Business has built the popularity of a convenience technology like GPS through news and entertainment media, along with the associated cohort of marketers and advertisers. People get information about the technology from business-informed stories, where the discourse happens. Storywriters take varying roles as proponents, critics, and referees for the companies selling the product. The earth is entangled and obscured in this communication involving consumers concerns of moving easily about the surface of the earth. Instead of relying on their senses, skill, and cues and clues from the world, people

choose a military electronic communication system that relies on computer technologies and satellites positioned high above the surface of the planet. The technology is a good place to investigate how business depicts the relationship between humans and the earth.

Developed by the U.S. military to aid troop navigation, guide missiles to their targets, and detect nuclear detonations, GPS was first made available to the public in 1983. GPS devices receive radio signals from a system of satellites to triangulate location, altitude, time, and velocity. Adopted initially by civil surveying, it became fully operational for academic, urban, commercial, and consumer use in the mid-1990s. The media coverage of the Persian Gulf War or “Desert Storm” by CNN in particular with live broadcasts is said to have been a major promotional tool for GPS (Pace et al., 1994). Global positioning or “navigation” has gained popularity with consumers in the United States over the last decade, moving from the high-end specialty consumer (fishing/boating, aviation, and hiking) to the mass consumer electronics market (automobile drivers).

Although GPS serves other civilian uses in science research, mass transit and transportation, agriculture, and surveying, the broader exposure to the discourse has occurred in business news about GPS. Business texts surrounding GPS for this study are drawn from occurred primarily two time frames, when the market for the technology has begun and at a peak point of sales of GPS units. Like other consumer electronics in the United States, GPS device manufacturers capture the interest of consumers by making the product visible with stories in trade, consumer, and news magazines, newspapers, and internet sites.

The earliest recreational users of GPS were individuals navigating boats, aircraft, and land travelers. A full view of the sky was needed before the system was fully operational and signals were enhanced. Since then the technology has become ubiquitous and so may seem a neutral part of the process of getting humans around the planet. GPS is one kind of nature-human interface that communicates information about the environment to humans. In a country of drivers, like the United States, the interstate highway and a road atlas could also

be considered nature-human interfaces. The interstates “insulate us from the landscape, cushioning drivers with blue-signed rest areas and a seemingly endless supply of Golden Arches” (Biemiller, 2014, n.p.). The road atlas is a popular device for navigating the roads and had oil companies and hotels as sponsors—essential needs for the drive across the vast North American continent. Also, “a full-page map of whatever state you’re in, or are planning to visit, offers context” (Biemiller, 2014), more than a small GPS screen does. So why the jump to a high-tech device, when people seemed content with the road atlas or map, visual cues from the landscape, and directions from other people to figure it out?

When people did travel only locally and moved about by foot or with the help of animals or boats, they were in regular touch with their environment. They learned the local routes and terrain and the features or landmarks to help them navigate. But does nature or the environment come into play anymore in a highly technological world? About 80 percent of the U.S. inhabitants live in or near urban areas (U.S. Census, 2010; World Bank, 2013). Obviously place, location, and movement, come into play, but what else? How did human senses, skills, and knowledge (and a map) become not good enough to get around the (surface of the planet)?

In a world where environmental issues and problems are ubiquitous, and assuming society wants to improve the situation, everyone needs to be more aware of the nature-human relationship. When media stories crafted by business ignore, obscure, or criticize this relationship, it should be of concern. And so what power relationships concerning the earth does GPS discourse establish and maintain? It matters how nature and the environment are referred to, acknowledged, and relied upon or not, because environmental discourse from business proposes not always clear roles for nature and the environment. Promotion of the technology as a time and money-saving device, likely focuses on a product that makes one’s life easier. How does the discourse of GPS, the futuristic tool for “finding one’s way,” depict the human relationship with nature? How does the reporting of GPS

technology engage people with nature and what are the main ideologies expressed in the reporting?

Finding Power in Discourse

Hegemony is a way of thinking about power or dominance over others, a way of sorting out power through the analysis. For media texts Reisigl and Wodak's (2009) definition of power draws from Popitz (1992) to view power as an asymmetrical relationship among social actors. Power in relation to nature, or in the case of the environment, uses—

- Actional force via physical force and violence,
- Control through threats and promises,
- Attachment to authority with the exertion of and submission to it, and
- Technical control through objects and means (of production, transportation, etc.)

In that relationship, power is legitimized or de-legitimized (as withdrawing legitimate status or authority from someone or something). GPS discourse is a site of hegemony in which certain kinds of social actors articulate with other people and the natural world. The structure can be used to understand the relevant literature.

Actional force. Physical force is used in the mining, manufacturing, and disposing of waste from the production of GPS technology. Physical force is used in the rockets that put the satellites into space, and the shipping and handling of the product. GPS was developed and is used for U.S. military action. Guiding missiles, bombs and rockets, locating submarines to make missiles more accurate, and locating troops for effective and accurate attacks all involve violence.

One article from American studies addresses the discourse surrounding GPS by looking at news, books, and academic journal articles over the last forty years (Kaplan, 2006). The discourse fosters an identity for consumers and expresses a militarization of consumer

identity. The actional force of power relationships occurs via the “military-industrial-media-entertainment network” (p. 704) drawing from the military use of GPS.

Control through Threats and Promises. People dislike being left behind or feeling out of popular culture. They also dislike getting lost when trying to get somewhere. Threats to one’s security and safety from an unknown place can cause people to act. That act may be to purchase something, especially if it will improve one’s life to move about faster, more efficiently, and more safely.

Some research in sociology examines aspects of safety, such as parents tracking children, and the fields of business and advertising follow the growth of consumer sales and interest in GPS that relate to the use of power by control with threats and promises. Health sciences research on GPS also fit with threats and promises and explores uses in healthcare and emergency medicine, such as locating victims and improving response time. American studies research sees control through threat and promise as an expression of power via the military. This is because the military aspect for people in the United States war is not at all elsewhere but is, in fact, deeply imbricated in everyday life as a “military industrial-media entertainment network” (Kaplan, 2006, p. 704).

With the onset of global climate change, affluent countries have taken a renewed interest in the environment, and over the final decade of GPS introduction, it is unclear whether U.S. Americans are spending more or less time outdoors (Pergams and Zaradic, 2008; Cordell, 2008). Consumer engagement with GPS and other screen-based technologies may contribute to a trend that leaves the public oblivious to the local environment and, in turn, to the changes taking place in the global environment, relating to power by control through promises/threats.

Attachment to authority by exertion of or submission to authority. Referring to the military, the government, certain experts, or users of the GPS can exercise power in different ways. It can cause people to accept or and yield to these entities as well. Even the voice of the GPS unit, which represents human faith in man, science, and technology, can wield power.

The story of the Sony Walkman provides a parallel example of how another consumer electronics device gained widespread use and popularity in Western culture (du Gay, Hall et al., 1997). The few years prior to 2008 showed a huge increase in GPS sales, indicating an image of the device as a must have product. A World GPS Market Forecast to 2013 showed considerable continued growth in sales and applications (<http://www.bloomberg.com>). This indicator can be construed as an attachment to authority in the push to sell GPS units.

Research that deals with power through the attachment and submission to authority includes criminal justice studies, which focus on GPS for tracking criminals and others. The introduction of interactive digital technologies like GPS increases surveillance, the power to monitor and control society (Andrejevic, 2007). In studies of science and technology (Latour, 1987), rhetoric has tended to move from weaker to stronger positions, and the same may apply to the discourse about GPS. The trend in journalism has been toward providing more opinions (Barnhurst, 2005), and so the expert or authority on GPS describes current products in business articles from a position of power.

Technical control through objects and means. The GPS system, GPS units, maps, and software, as well as articles in newspapers, magazines and web sites and the automobiles with GPS units installed exhibit technical control over people and the world. Equally, the means of production, means of transportation, weapons, and other systems can exert control. For example, as production increases, costs go down, making the object more “affordable,” an example of the social shaping of the technology.

The push for more and more individuals to own and use mobile devices such as GPS units moves the public toward a panoptic society, delving into technical control as well. Sociology connects with technical control in other areas. Research in cultural studies looks at cars and driving, and studies of technology and computer science look at uses, interfaces, and software or hardware features and development. Finally, biologists have employed GPS for tracking animal movements, among other applications that may be best associated with

both technical and physical control. The uses of GPS are widespread and varied, as are GPS connections with power relationships (Pinder, 2013; Kaplan, 2013).

From a cultural perspective, technical control is evident in the work of Aporta and Higgs (2005). They present Albert Borgmann's paradigmatic theory of technology (the device paradigm) as a way to think about the changes in society and technology and what they mean for the nature-human relationship. Users who choose to use certain technologies disengage with nature. They tend to then rely on and need to rely on more technology. But the option to choose *not* to use technology is still always available, and depending on the situation is often the better choice.

Nature-human interfaces and environmental communication have become important areas of social change and key areas for scholarly inquiry. The critical examination of the discourse surrounding GPS can contribute by comparing the different types of media texts, and comparing early discourse to later discourse can uncover differences in how writers, technologists, and others describe the nature-human nexus. Of course, the general goal is to understand how media texts are discouraging. But also when the options to choose not to use the technology appear. More awareness of unequal power relations the media support can lead to options for a more equal and just way of communicating that exposes the hidden aspects of the nature-human relationship.

Given the ubiquity of GPS—its spread throughout the academy, the media, and the public, its role as nature-human interface, and the resulting unequal power relationships, the discourse surrounding GPS requires further study.

Critical Analysis of the Layers of GPS Discourse and Technology

To understand how business depicts the nature-human relationship, a flexible method that goes deeper to assess discourse in media texts is needed. Traditional critical discourse analysis (Faircloughian) explores the context of the discourse as well as the texts (both addressed briefly below). Discourse-historical analysis used here, addresses relationships of

power, an important aspect of the human-technology-nature relationship and possibly the discouragement that surrounds environmental communication. To get at any discouraging aspect in the texts, Dryzek's ontological assessment scheme is unique in providing method that looks at natural relationships and can work to examine the environmental texts about GPS business news and understand the stories told. His questions look at what entities the discourse recognizes or constructs, what assumptions are made about natural relationships, what agents and motives are identified, and the key metaphors and other rhetorical devices the texts use.

Three discursive strategies from Discourse-historical analysis appear to apply to the study of GPS business discourse. The reference and nomination strategy, poses the names and titles of people(s) and entities (such as manufacturers and organizations) mentioned. Predication qualifies objects, groups, actions, and processes and events. Perspectivization is what angles the authors use to approach the issue, which help expose the framing and representation of the subject/scenario. Two strategies, argumentation and intensification or mitigation seemed (and turned out to be) less present in business discourse that tends not to see a need to argue, justify, and adapt its claims to a critical interlocutor (see Reisigl and Wodak, 2009).

Reisigl and Wodak overlap in the reference and nomination strategy and argumentation strategy with Dryzek's. After analyzing the texts using Dryzek's scheme, I then supplement it with Reisigl and Wodak's strategies.

Other research on environmental communication has identified discourse as emanating from industry (Dryzek, 2013), as domestication and targeting consumers (Meisner, 2005), as being technologized (Vannini and McCrigh, 2011), and as a militarization of the consumer (Kaplan, 2006). All of these dimensions encompass contradictions—a common aspect of the modern, complex world (Hodge, 2012). Discourse contains contradictions because “unity or consistency in ideology is no longer expected.” The ubiquitous contradictions are “not dysfunctional, but key to how ideology normally functions and achieves its effects.”

They arise “from the process of struggle, as meanings from the other are incorporated into discourse, in complex structures.” They “risk incoherence to manipulate better” (Hodge, 2012, p. 5). Hodge developed the concept of *ideological complex* that accounts for the different perspective included in discourses that work to support an argument or persuade an audience. So contradictions are identified in the texts as well.

The context. The artifacts chosen come from two time frames. The first period in 1998, shortly after GPS became fully functional, was a time of developing of the hardware and software and imagining uses for the public. The year is from a middle period when the technology was becoming well know and had clearly entered public discussion, but also was limited by Selective Availability (SA). That year the Iraqi disarmament crisis was occurring, bringing more discussion of GPS use in the military, which had built earlier civilian interest during the Persian Gulf War. It was the middle of the dot-com bubble, and high-tech companies (read: GPS) were popular with investors. The year was also before the accuracy limit was lifted for civilian users (in 2000), which hindered interest in GPS. But the period was one of initial enthusiasm.

The second period in 2008 saw a peak in GPS unit sales. The year is when the technology was ubiquitous in use and discourse without the limit in accuracy from SA. The period was a time of change, where the cost and size of the GPS chips fell and ideas about how to use GPS in more devices increased. GPS enabled phone and portable computing devices were taking a considerable share of the market from stand-alone units. It was also a time of replacement of satellites, with fear of the oldest ones failing and the newest ones not being sent up due to cost and schedule overruns. It was also the year when the TV news program *60 Minutes* ran “Following the Trail of Toxic E-Waste,” showing how the United States was shipping old electronic gadgets to China and exposing the accompanying environmental problems. *National Geographic* also published the story “High Tech Trash,” revealing to the general public the social and environmental problems associated with U.S. Americans’ consumption and disposal of high-tech toys. The 2008 economic recession

made for reluctant consumers and slowing or leveling the growth of GPS sales. Although marketers and technologists held out the promise of additional signals from the satellites soon, they claimed would increase capability for civilian users, sales began to drop off.

The texts. The research sought published sources with substantial discussion of GPS as an expression of the discourse. A practical limitation was to stick with print and online news sources. The publication years center on 1998 and 2008 or within a year before or after to allow the fullest analysis of substantial texts.

The search for publications employed library guides for all sources relevant to GPS, and the search within the publications used online tools (LexisNexis and NewsBank) to identify the texts. The main keyword search was defined (as (GPS OR Global positioning system OR navigation) AND (consumer OR public)), and scholarly tools (EbscoHost and CSA Illumina) were used for academic commentary and yielded a few articles relevant to the discourse. The main periodical search yielded a larger body of shorter artifacts (34) from the first period and a smaller one (23) of longer articles for the second. Examination of the available corpus identified 10 articles from around 1998 (1 from 1997) and 12 from around 2008 (2 from 2007, and 3 from 2009), which presented relevant and substantial discussions of GPS, the criteria to use in the study. Articles with just a mention of GPS were not included.

The texts come from different types of publications: outdoor magazines, the industry press, business and consumer magazines, and mainstream liberal and conservative newspapers. The following sources (with their political leaning if known) are part of the study: Newspapers include the *Washington Times* (right-leaning big-city daily, pro-business with a consumerist view), *USA Today* (Gannett owned right-leaning, national paper), the *New York Times* (center or center left leaning), and the *Boston Globe* (New York Times Company owned, center or center left-leaning). Consumer news magazines include *Fortune* (right-leaning), *U.S. News and World Report* (right-leaning), *Money* (right-leaning), *Time* (right-leaning), and *Newsweek* (center-left-leaning). Industry news comes from *Newsbytes News*

Network (on-line, and owned by the Washington Post Company since 1997, but later closed down) and *Satellite Weekly* (from Warren Publishing, family owned and run). Recreation-focused internet magazines represented are *DesertUSA*, *Outside*, and *BackpackingLight*, which offer information for the outdoorsperson. As commercial news and entertainment sources, all these texts have the unspoken task of capturing “eyeballs” for the advertisers. Some might imagine a responsibility to consumers and to frank information. All privilege business sources, and some take part in cheerleading for business growth, providing forecasts of market health, competition, and product sales.

The analysis. A close reading of each text identified instances of Dryzek’s assessment categories and Reisigl and Wodak’s strategies. Each article was identified by the title, year, and source. The interpretation involved recursive reading for a general feel of the text and then for the two different periods to note general differences between them. The articles required more detailed study to identify instances of each of the ontological assessment elements and of the discursive strategies. During each reading, contradictions were also noted, and a further review observed patterns in the expressions of power in the texts.

Findings

The articles mostly encourage consumers onto the GPS bandwagon, with little question of the impacts or need for it. The first wave of articles seeks to build the market, while overcoming resistance to the new technology. By calling it a “cool” tool or gadget, they pique the interest of the tech hungry. Writers thank the Pentagon for the gift, maybe to tap into patriotism or to imply that taxpayers deserve something for all the money that went into military technology development. The writers help consumers and shoppers make the best choice for best price, in the mode of a virtual sales associate. They highlight consumer support, such as product finding services, a mall shop, or even one’s tech-savvy kid, while admitting GPS is just a convenience. In an unspoken or unacknowledged quest to

promote the latest, greatest technology, they also try to offer anyone reading the article something to connect with the product.

Counter discourse appears in some of the stories, usually introduced with a joke or by poking fun at users in some way. The non-consumer uses, such as surveying, wildlife tracking, and shipping container location, are mentioned briefly and may comprise the bulk of users in the early days. The discourse moves from GPS being difficult to master in the early period, to being super simple to operate later, when fears of people becoming too reliant on it emerge. This also reflects the status of the GPS unit as a fully developed device (as Borgmann would define it) with an ease of use and hidden connections to a huge system that it relies on. The privacy and risk or safety issues also get a mention in the later period, but still the articles give a thin slice of the story, which is what one would expect from for-profit consumer outlets.

Overall, the main difference in between the two time frames reveals a shift from practical criticism in 1998 to technological enthusiasm with some precautions in 2008. In the ontological assessment, the entities recognized and constructed are mainly the government and military, industry representatives, and users. The assumptions about nature include human senses as insufficient, nature as a barrier or obstacle, humans as liable to get lost and become unsafe or fearful, and nature as appealing to humans. Agents and motives include impressive technology, problem solving, and change. The key metaphors and other rhetoric include prominent references to nature with movement, a focus in the future and progress, jokes and the contrasting words or phrases such as “precision” and “featureless desert.” The contradictions and counter discourse of the texts show a shifting of perspectives of the authors on the cost, usefulness, and precision, possibly to resonate with a diversity of views in the population.

News and consumer magazines offer overviews and reviews, occasionally with buyers-guide information. The business and financial magazines cater to those well enough off to invest in the product companies. Newspapers provide a bit more depth and breadth, even

questioning the ubiquity and implications of the technology. The industry news magazines mainly track the industry and provide figures and positive predictions. And the specialty outdoor magazines question the necessity and use of GPS, offering the most critical perspective and a hint at the problems with a “device.” Each type of these perspectives overlaps with the other, but elements from the articles help expose the underlying ideology, power, and discursive strategies that depict nature-human relationships.

Time Frame Discourses

The texts from 1998 introduce people to GPS and express doubts about it. The writers position GPS as expensive and as technology that does not work that well. They predict the growth of the industry, share features and benefits, and reassure the consumer that the government is making the system more robust. There is a rhetoric of practical criticism, telling the reader what does work, for what cost, how the models differ and how to work around problems with them, and what to expect in the future. The articles refer persistently to the future in a mixture of hopeful expectation and criticism. The criticism does not stand outside the system it criticizes or ask fundamental questions. Instead, it offers only functional details. The critic points out problems but also anticipates that things will get better. Even the exceptional article that starts out highly negative (*Fortune*, 1998) still shows functional and anticipatory qualities overall. The military seems to be neutral in the 1998 texts, just a source of production or the major controller. The only issue emerging in 1998 is government, which has set a policy that makes the system less functional for consumers. Government law and the military appear in the articles as two distinct, disconnected entities.

The 1998 industry news magazines *Newsbytes* and *Satellite Weekly* focus on markets, industry, and government and follow a path of promotion, improvement and preparing for growth. One of the industry articles is skeptical, like the consumer magazines, and pokes fun in the start of an article based on a report from vice president Al Gore on GPS:

“Campers, hikers, boaters and such will be able to determine just how lost they are with greater precision, now that the Federal government has released two new global positioning system (GPS) signals for civilian use” (*Newsbytes*, March 31, 1998, n.p.), the sentence is a bit sarcastic and future focused on the improvements to the system. The article also implies a broad user base, “from backpackers and boaters to farmers and fishermen, from airline pilots to telecommunications providers, and from scientists to surveyors” with the appearance that these users are getting a deal because GPS is “free of charge to consumers” (n.p.). Of course, all taxpayers finance GPS with the portion of Federal funding that goes to the large U.S. military budget. Quoting Gore exerts authority, of the author, who also praises technology for giving power, actional force and technical control to users: “GPS has become an engine of economic growth and efficiency as businesses and consumers are continually developing new and creative applications of the system” (n.p.). Despite the initial skepticism, the article supports the value of technology, quoting Gore again: “We will continue to do everything we can to protect these GPS signals and promote GPS applications for commercial, public safety and national security purposes.” The quotation implies a submission to authority and exerts control through promises. The article continues to the end with its focus on the future, the improvements, and the value of GPS for more users—progress, in other words.

The discourse of this time frame relies on practical criticism of a new or young technology, with a focus on the future, showing support of the dominant social paradigm—progress. At the same time, asserts that it addresses a broad base of users, many who do venture into the outdoors.

In the later discourse, the articles from 2008 are texts that tend to give a history of GPS through longer stories where they track the growth and predict future growth, encouraging people to desire and to use the device (creating the future of GPS). One article in 2008 questions future growth, probably because of the economic downturn. Journalists describe the features and benefits and provide user testimonies of how great GPS is (partly

great, though not for all). Writers also provide balance in the story for the “bad” side of GPS—people driving off the road when the GPS has wrong map information, people losing their ability and skill at navigating, and people divulging personal information being tracked. One article mentions “Big Brother,” referring to surveillance that compromises civil liberties and to government abuse of power.

The 2008 articles have the rhetoric of practical criticism to a much lesser degree and focus more on the latest technology and least developed applications. They delve deeper into the land of the consumer and stay there. The articles reach out to the reader with user testimonies, espousing convenience and saving time. They praise what will come next—more features, better signals, and smaller units—a kind of technological enthusiasm. At the same time, the articles in the specialty recreation magazines have a cautionary discourse (i.e., threatening) that speaks to the distancing from nature the user experiences and to the increased danger from using a GPS unit.

The articles from the papers and magazines, as a whole, report information for users of GPS units, often from GPS users, expressing how Americans want to avoid getting lost, and listing the useful things these “gadgets” or “gizmos” can do now and may do in the future. Unlike the articles from 1998, the later articles tend to include actual users and their comments, in one sense giving power to the public, but in another assisting the authors in promoting the technology. The articles are considerably longer. At 1000 words, the 2008 articles are more than half again as long as the 1998 articles at around 600 words. This could be due to newspaper articles in 2008, where there were none in 1998, or to the increasing length of news stories (see Barnhurst and Mutz, 1997).

In *U.S. News and World Report*, a user says, “It’s really about convenience, and there’s comfort in always knowing where you are” (n.p.). The article promotes the myth that technology makes one’s life easier and more comfortable through promises. The author pushes it further, claiming a collective view: “It’s a feeling many share,” and “a growing number of travelers who increasingly rely on GPS and other navigation tools to cope with

unfamiliar places and unplanned situations” (n.p.), implying that somehow one can and must avoid annoying and uncomfortable situations. Threats of a sort are used, as well as the collective “many”, meaning experienced users of GPS, which by that point in time numbered in the millions, and so the sentence carries that weight of experience. An article in the *Washington Times* says about a user that GPS “has transformed the way she does things by saving time and making her more efficient.” It quotes another user saying, “It helps me get around to the businesses I need to get to much quicker . . . I don’t need to waste time trying to navigate areas I don’t know about” (p. B01). Speed, efficiency, comfort and convenience take precedence.

Trust in technology comes up in the articles through the forms of expression and the outcomes predicted. *U.S. News and World Report* uses a display of confidence at the end of an article on how GPS is doing more for less: “My wife was saying the [receiver] had to be wrong and that we had to do something . . . But we stuck with it, and suddenly, we’re sitting at the park entrance” (n.p.). A bit of counter discourse appears in a *USA Today* article titled, “Watch Where You’re Going: GPS devices not always up to date” (March 12, 2009), reporting on instances of drivers so trusting in the technology that they would drive off the road. When a state trooper asked what happened, one of the unintentional off-roaders replied, “That’s what my GPS told me to do” (p. 3A). The text highlights technical control and control through submission. Although the title of the article points to drivers’ responsibility to pay attention to the world outside the vehicle and its technology, the article focuses on the incomplete and not always correct GPS data and on how users can help update that information.

Other prominent aspects of the 2008 articles are the focus on consumption details and on what users can expect in the future. For example, *Money* magazine promises, “Features that go beyond navigation could sustain sales of GPS devices that have been red-hot for the holidays” (2008, July 8, p. 8B). To encourage consumption and build expectations, the articles include quotations from GPS manufacturers and service providers. Statements like,

“People are going to want and expect more content” (p. 8B) and “It’s another step on the inevitable process of having the internet in cars” (p. 8B) express a bright future for consumers and industry, in other words, an ideology of economic growth and progress.

As with the 1998 articles, poking fun remains a staple of the 2008 articles. The *New York Times* quips, “GPS units were a big hit last year among those giving holiday gifts to the chronically lost” (2008, October, 9, p. 10). And a sexist cliché turns up in the *Washington Times*: “The core impact, certainly for men, is they never have to stop and ask for directions anymore . . . which for a man is a big deal” (p. 10), the ultimate promise for the individualist.

The 2008 articles are characterized by technological enthusiasm to engage more consumers while helping them make the right purchase with GPS. They make for a brighter future through convenience, efficiency and effective movement in one’s vehicle. Some counter discourse shares precautions, but only to balance the stories that mainly convey the economic growth and progress of the industry, depending on the story source.

Ontological Assessment

To understand the environmental discourse of the stories, the assessment identifies aspects of the stories that reveal the perspective of the authors: the characters, such as authorities, experts and users; assumptions, such as that nature is a barrier to human progress; agents and motives, such as problems that need solving; and persuasive language, such as terms that naturalize technology. The aspects used to build the stories at the same time intermixed with the ontological assessment, are observations of how power is being exerted in the discourse. The observations refer to the multiple ways power is manifested, such as through action, control, and authority.

Entities recognized and constructed. The texts indicate clear use of authoritative power by the entities mentioned, particularly the government. Reference to the Department of Defense, the Pentagon, or the generic government predominate in the stories. Aspects of war such as the Strategic Defense Initiative and Desert Storm are mentioned in the earlier

articles—signaling the troops and missiles using GPS possibly to tap into patriotism. President Clinton and “technology minded” Vice President Al Gore are mentioned and quoted, and a report Gore issued was the basis for a few stories. The Interagency GPS Executive Board (IGEB) appears in one 1998 *NewsBytes* story as well, because by then the bulk of GPS was non-military and the board was helping meet the needs of civilian users. A range of government “authorities” appears in the discourse, which shows broad support and commitment to the GPS system and is a persuasive use of powerful entities.

The writers also exert authoritative power by including market and industry entities such as analysts, GPS and automobile manufacturers, their CEOs, marketing specialists, or other business representatives. Industry figures appear by name and title in many stories, giving an expert and authoritative air to the GPS market and industry. Media writers themselves join in this group when they provide opinion and data from their research on the features and benefits of GPS.

Finally, civilians receive various forms of recognition. Authors group people by where they live, as Americans, Europeans, or the general “civilian community” or even “users around the world.” Civilians appear by recreational interests such as campers, boaters, hikers, backpackers, and fishermen, and by work or use-related activities, such as farmers, airline pilots, and scientists. Recognizing people in groups in the stories provides many points of entry for consumers to take up GPS.

Assumptions about nature relationships. A key area that helps interpret texts is how discourse represents the nature-human relationship. Determining assumptions is an interpretive act that requires self-reflexivity, to avoid bias. Even a self-proclaimed environmentalist can be a committed qualitative researcher when looking to make sense of these texts.

Some of the assumptions encountered revolve around the role of technology and technological control as a form of power. Articles assumed the need for technology to navigate in the outdoors (and indoors). One story title reads, “GPS becomes a vital tool for

frequent travelers.” Another assumes that the technology is so powerful and appealing that humans can leave nature (and their senses) behind. The author from *Fortune* puts it this way: “compulsive navigators may have really seen the last of the redwood groves and ocean vistas. But even those who prefer to take in the scenery could get hooked” (Nov. 16, 1998). Writers indicate how nature degrades (the signal) and gets in the way of GPS (through actional force). For example, authors from *U.S. News and World Report* and *Time* report that “unfavorable atmospheric conditions, tall buildings, trees and other obstacles can degrade GPS data” and that “GPS doesn’t work if too much of the sky is obscured by mountains, foliage, or buildings.” They assume that technology is more accurate than human senses and that nature is a barrier to that accuracy. Fundamental assumptions include that sending orbiting satellites above the earth is okay and necessary for life, that there are few if any consequences to using the atmosphere to transport information over radio waves, and that human-made systems (such as cell service or accurate GPS) are everywhere and are maintained everywhere, even in wilderness areas. These assumptions rely on the power of promise.

Another set of assumptions deals with location on the surface of the planet. Writers assume that people do not know where on the earth they are, and that that is a problem, or that people are afraid of the being lost. For instance, a *U.S. News and World Report* author quotes a GPS user, who says, “there’s always comfort in knowing where you are.” Writer and source assume that recreationalists will get lost and that human movements on land, water and air are unsafe. A *NewsBytes* article quotes Vice President Al Gore who says the increased benefit from GPS “is expected to be in public safety applications, particularly in international aviation, land transportation and maritime uses.” These assumptions employ the power of control through threats, often veiled as “safety.”

When the texts try for balance, people and what they do become the focus in some of the assumptions. One example is that older people are smarter and more experienced with the outdoors. Another is that some people walk and seek scenic routes, and a third is that

the biggest concerns in U.S. life are about traffic, services and expenses. Another article assumes that humans would want to map the entire planet to the centimeter.

Finally, the articles make assumptions about the qualities of nature. Some are negative: that deserts are featureless and that nature is slow, which are frustrating to humans or that the world outside one's car is noisy and makes it noisy inside the car. Others are positive: that nature is and always will be there; that if you know nature, you can get around (it can help you); that some people will always prefer nature; and that humans want a satisfying encounter/experience in nature.

Assumptions about the human relationship with nature seem to lie in four zones, two that alienate, and two that contradict. One zone deals with human technology and how it is more powerful than nature and vital to travelers. In a way technology promises to replace the need for nature itself. Another zone makes assumptions about location: that people have no idea where they are and where they are in danger. These both alienate people from nature. In the third zone of assumptions, people become the focus about the relationship with nature and fall into two categories, those who lean toward culture or nature. A last zone of assumptions deals with qualities of nature, some appealing, such as nature will always be there, and others not, such as nature being slow and frustrating. These two offer contradictions, a highlight of modern discourse.

Agents and motives. Technological control dominates the agents and motives area of the discourse. "Impressive technology" is one term to use to group the discourse in the articles. The futuristic, almost magical GPS system and "gadgets" leave such an impression that people will follow their directions even if it leads to disaster. The devices are impressive because of the "explosive growth of the market," because of the "billions of dollars and thousands of lives it will save" and because "the pace of GPS is breathtaking" in its advances.

The "problem solver" is another pattern in the discourse. GPS offers convenience and comfort to the user, who can avoid traffic congestion and find services, even a booth at the mall. A common feature of the texts is the use of promises as a form of power and control.

The GPS as problem solver is an “engine of economic growth and efficiency” because of being so easy to use. One manufacturer wanted people to be able to open the box, put the unit on the dashboard and use it with no owner’s manual to read. Another story sold GPS as avoiding having to pull over to look at unwieldy maps that may be out of date. GPS is said to be key for public safety in aviation, land navigations and maritime applications. Most of the claims present no details, but clearly rely on threats to motivate people to adopt GPS.

A third zone of agents and motives in the discourse of GPS texts is change. Much of the early discourse talked about how impressive and helpful GPS was, but how hard it was to use. The use of technical control and authority may have acted to hook consumers. Later the units become more feature-packed and easy-to-use—just power up the unit, give it directions, and go! The earlier stories told how U. S. companies were cooperating with Asian manufacturers, but competing with Europe and Russia over the radio signal spectrum. The later articles tell how the mature industry and market were competing with Asian manufacturers, to the disadvantage of some U.S. companies. Another aspect of change was concern for people losing or not developing important skills: map reading, giving directions and remembering addresses, making them reliant on the technology instead. The assumption is that once adopted, GPS will always be around—in a way, a promise. Some stories go so far as saying that as prices fall from growing production, “there will be GPS for everyone,” even “for all the world’s nations into the 21st century.” Another article states that once the price drops below \$200 (another change), everyone will have GPS. The assumption teaches that \$200 is not too much to spend, obscuring a further submission to authority.

Key metaphors and other rhetoric. One surprise is that much of the rhetoric and many of the metaphors used in the texts make reference to nature, natural processes or natural phenomena. The texts invoke movement, such as “lately GPS devices have been *migrating* onto millions of dashboards” (italics added), as if the units are natural creatures that crawl, walk, or fly there by themselves. The same article says, “Upcoming GPS chips will be so small and power-frugal that they’ll also *sneak* into just about anything portable” (italics

added). The curious and possibly effective use of promises, threats, and almost actional force, employs multiple strands of power. One author writes that GPS began “as a military tool and *evolved into a civilian convenience*” (italics added), and another use the terms “sloughing off” and “cascading out” in reference to the information or data involved. The terms can be interpreted as natural, but may also refer to market economics, as in “GPS is rapidly spreading,” “portable GPS units are seeing explosive growth,” and “the sign of the vitality of GPS,” or the reference to “a rich vein of information.” The texts also depict the technology as a “companion” to the lonely automobile driver, making the technology into a physical, co-pilot and virtual travel buddy. A key example repeats the term *ecosystem* in a quotation from a Nokia VP: “We want to create an ecosystem of services that connect people to people and people to places in new ways.” The authors tend to use nature covertly, even inadvertently, as a way of reinforcing the power of technology.

References to the future are ubiquitous in the texts. “The future will be better” is a statement of the concept of progress and uses the power of promises to attract consumers. For example, the phrase, “*There will be more in the future* has as special cases the accumulation of goods and wage inflation” (Lakoff and Johnsen, 1980), promising an increase over time. Examples include “GPS will be synonymous with the TV and telephone” and “GPS will be offered by all major auto manufacturers within the next few years.” Various direct references like “the future looks bright” and “sometime in the not-too-distant-future” promise improvements to GPS and serve to maintain the dominant social paradigm of progress.

Other rhetoric in the articles takes the form of joking, making fun, or tongue-in-cheek expressions. One refers to a “direction freak” whose need GPS will satisfy. Another more critical author asks, “Who could resist a sleek gadget that only needs batteries to communicate with the heavens and pinpoint your earthly location?” The answer “As it turns out, some people can.” Authors may engage in this form of writing to entertain the readers or to make a point about GPS technology and the market surrounding it. It comes across as

critique, which balances the stories. There is relatively little critique in the articles. Sometimes writers joke when they lack an understanding of something, or when they view something as unnecessary or redundant.

An ontological assessment of the texts from the two time periods reveals a strong tendency toward cheerleading for the technology of GPS, an expectation for growth of the industry, and a focus on progress. Arnold Pacey (1983) has long argued that technology as we know it depends on deep social commitments to progress, expertise, and natural resources—and therefore to change technological forms requires a cultural revolution in our values. Words and phrases that stand out are “pinpoint” and “anywhere on earth.” This focus on precision across a huge expanse of water and land enforces the power of the technology through possibility and promise.

Nature takes a contradictory part in the discourse, appearing to support and naturalize the technology, while getting in the way of the technology by reducing its capabilities and as a distraction to possible users. Many more contradictions appear in the texts.

Contradictions and Counter Discourse

Discourse contains contradictions because “unity or consistency in ideology is no longer expected.” The ubiquitous contradictions are “not dysfunctional, but key to how ideology normally functions and achieves its effects.” They arise “from the process of struggle, as meanings from the other are incorporated into discourse, in complex structures.” They “risk incoherence to manipulate better” (Hodge, 2012, p. 5). One prominent pattern of contradiction occurs when writers strive for balance in their stories. The resulting discourse obscures contradictions, and conflict or disagreement in the media tends to reinforce the status quo. Critical discourse analysis works to reveal those contradictions.

Despite the claims some of the articles make of “GPS for everyone,” users (identified by name and a less-regular part in the articles), either love the technology or have trouble

with it. Women in one article struggle because the operating system of GPS units still used maps, waypoints, and longitude/latitude. Generic “men” are also represented as liking GPS for freeing them from asking for directions, but also eschewing the technology and sticking with the help of gas station attendants or their own human instinct. The contradiction invites the consumer to join in discounting the stubbornness of the stereotyped male.

One extreme contradiction concerns the cost of the GPS system. On one hand, users are free to use the signals, (leaving aside the cost of the GPS unit and related services and accessories). But the contradiction is that the entire system was expensive, at a cost of \$12 billion to become operational, all drawn from U.S. taxpayers.

Another example is an article in *Fortune* that gives a warning:

A word of caution to anyone who fancies trekking in the woods, navigating the seas, or crisscrossing highways with nothing but a GPS: Consumer-grade receivers are not entirely accurate. They can be off by as much as 300 feet because they rely on signals that the U.S. government intentionally disturbs for security reasons. (1998, p. 34)

The text contains clear exertion of—and submission to—authority. Oddly, the caption for a photo in the article insists one can “navigate the woods with confidence with a handheld GPS unit like the Trimble Scoutmaster” (1998, p. 34), making a prominent promise to the audience, despite the previous doubts and warnings.

Another contradiction in the texts concerns how writers depict GPS making drivers feel safer and more secure. They mention “the peace of mind in knowing where you're headed and that you won't get lost” (*Washington Times*, August 4, 2008). In contrast stories reveal the “danger” when people focus on the GPS unit rather than on common sense and what they see in the world. Two families in Windham, Vermont, followed their GPS onto a snowmobile trail and into deep snow (*USA Today*, March 12, 2009), when the determined fathers just kept driving until they got stuck. The contradiction evaporates into a kind of

mocking of the stupid, inviting smart users to stick with the system. The counter discourse is explicit in the specialty magazines. They respond to the question of GPS by helping people avoid getting lost:

Lostproofing starts with being aware, and then extends out to having solid map and compass/GPS skills. If you are out hiking and you're not paying attention to your surroundings, then you have a good chance of getting lost. Or, as we survival instructors say, getting turned around. (2008, n.p.)

After telling a story about getting lost himself, the author concludes with more information to keep the smart consumer smart:

So, the moral here is to pay attention to your surroundings when hiking, particularly noting prominent landmarks such as boulders, power lines, valleys, etc . . . These will become your reference points on your return hike out. Then become acquainted with how to read a topo map and use a compass. A GPS is handy but it is prone to failure and is NO substitute for good map reading skills. (n.p.)

The discourse treats nature as a danger and warns those without nature skills to stay away or at least use GPS in safe, settled places, on civilized routes rather than backcountry. The stories marshal contradictions in support of mainstream views in the population. GPS is free, but expensive and so take advantage of it. It is appealing and useful, but also unnecessary and so show off your affluence. It is precise and lets you navigate with confidence, but it can guide one off the road and so use it without venturing too far into nature. The main counter discourse questioning the need for GPS, particularly for outdoor hiking, emphasizes consumption while shielding oneself from settings where humans are directly in contact with nature.

Discussion

The articles for a general audience tend to approach GPS through consumer ideology. So knowledge is power for the individual. Knowing about the different models, features, prices and performance will help the consumer make an informed purchase. The articles for a specialty recreation audience reveal a holistic leaning to include nature and raise awareness of the incompatibilities with GPS while remaining steeped in consumer ideology. And the articles aimed at the industry focus on growth, movement, innovation, and competition in the market. Some things that remain hidden (i.e. the device paradigm) are the loss or removal of skills for the user, and the environmental impacts of the product production and disposal. People have gotten around large cities for more than 100 years without the help of GPS by learning the lay of the land, the main streets and intersections and being aware of their orientation to the earth and their location, and of course knowing how to read and orient a map. These are useful life-long skills that a generation of people will be without. Consumer culture involves packaging, shipping, and disposal or recycling of unwanted, used or defective, worn out, and broken units. Electronics manufacturing involves the use of virgin and toxic materials, water and air pollution, and worker issues such as pay and health hazards. And military production involves numerous impacts from the use and maintenance of the system.

But there is more than just consumer ideology expressed in the articles. A number of tensions reside in the texts. A dichotomy between civilization/urban vs. nature/wilderness is apparent in many of the articles, expressed in the desire for safety, knowledge, and control versus fear, ignorance, being lost, and losing control. Another area of tension is between technology and society. Some articles highlighted expertise versus populism. Mainly specialty magazines claim GPS for the few, or share anti-GPS sentiments, and the rest of the texts say GPS for all. The ideas of aesthetics and immersion vs. efficiency and functionalism emerged in the articles as well, and, finally, ideas of the future as new vs. old

appeared throughout the texts. The alienation of humans from nature is pretty clear in the environmental discourse the media supply. Examples of the areas of tension are spread across the discourse analysis aspects of power.

Power through Action or Violence. GPS is a large network or system of interconnected subsystems that ultimately rely on the earth, just as humans do. Power through action comes from the environmental impacts from two subsystems. The first action of power is from the manufacturing, transportation, sales and disposal of the GPS merchandise and packaging. It includes mining of “rare earth” metals, manufacture of electronics that cause air and water pollution, and waste disposal from all processes. The industry affects the workers and people living in areas near where each phase of the industry takes place. The second action of power is from the military and includes the rocket launching. Like above, the rockets and satellites are built from mined natural resources and require fuel, which creates pollution, and the retirement and disposal of old GPS satellites creates space junk. These aspects are never mentioned in these texts. The power of violence comes from the U.S. military development of the GPS as used to assert power directly over people and engage in violence when waging war. The military uses GPS to position submarines that can fire missiles accurately. Some missiles contain a separate GPS unit to guide the payload to a target location. The military uses GPS and position troops on the ground and to locate the enemy. GPS deployment and management takes place at military bases with a history of polluting the environment (Hynes, 2011). The military uses GPS to detect nuclear detonations around the world, a way of tracking which countries are deploying nuclear arms devices, whether for testing or other use, to maintain U.S. superiority and dominance in nuclear arms.

So power as action and violence arises from the creation and maintenance of the GPS system for consumers and the military, and through the use of the GPS system by civilians and the military. At the same time, another contradiction emerges. While happy U.S.

consumers navigate to their next place of business or coffee stop, combatants but also inhabitants of foreign nations on the “other side of the world” are under missile fire, living in rubble and pollution, all thanks to GPS.

Control with Threats or Promises. Many of the promises and threats revolve around aesthetics/immersion vs. efficiency/functionalism. The specialty articles see a future looming when old knowledge (and aesthetic experience) is lost: a negative future, with nature retained only with extra effort. “If life is lived through devices, finding meaning (personal, social, and environmental) becomes more difficult and engaging with our physical and social surroundings becomes less obvious and appropriate” (Aporta and Higgs, 2005, p. 746). The trade articles see a future of growth, sales, and expansion of a market: a positive future, but with no nature explicit. The consumer articles see a future of easy, quick, and cheap access to what was once expert knowledge of navigation, but again no nature to speak of. It seems that the whole of GPS discourse involves less of nature in some way, either nostalgia for nature lost or a thoroughly mediated nature. If the discursive patterns are precursors to future experience, then they suggest the advance of the ideologies of consumption and technology and a corresponding retreat of ideologies that promote direct engagement with the natural environment.

From the specialty magazines, for the experienced trekker, GPS units add weight and subtract from the sublime rewards of being immersed in nature, but the units also extend the trekker’s senses under conditions without other signposts, such as in a dense, flat jungle. The aesthetics are already available to the readers of specialty magazines, and the technology has value only as far as it extends that immersive experience. The discourse invites its audience to engage in a cost benefit analysis based on the joys (or promises) versus the practicalities (or threats) of being alone in the wilderness. But major costs of the GPS system are hidden in the accounting that ignores the environmental degradation and military consequences, and so the outcomes are misguided.

The industry and popular accounts present a different aesthetic and functional dimension to the consumer. The size of GPS screens, their touch access to the many features, and their 3D view of the road are the main aesthetic dimensions. Product comparison is one way to maximize that aesthetic experience, and the discourse encourages consumers to immerse themselves in trying out and buying before enjoying the product. But the justifying promise and logic is saving time, time-as-money, and efficiency as established by Jacques Ellul (1964), the French thinker in his work on modern technological systems as a whole. The discourse invites the general audience to weigh product features and efficient travel, disguising the ideology of consumption behind something one article calls improving quality of life. Only the magazines for outdoor enthusiasts suggest that people might have better quality of life by focusing on landmarks and using their brains and memories for navigating, encouraging more of a relationship with nature without discouraging GPS purchases.

Issues of safety, knowledge, and control, on one hand, and fear, ignorance, and being lost, on the other, are woven throughout the articles in a kind of civilization/urban vs. wilderness/nature scheme. Does media discourse about GPS encourage users to go out and interact with the environment? No, the rhetoric promotes disconnecting from the physical world and engaging with a virtual one. The articles reveal a continued sheltering of U.S. Americans from the dangers in nature, while urging them to use a virtual companion to help them move about safely. The combination has the appearance of freedom, but with the dominance of the system—with missing data, maps lacking updates, or orders of a digital voice to follow (even if no road exists to turn onto). This is a result of what Arnold Pacey (1983, p. 35) calls the “culture of expertise.” So focused on the technology, the developers see little else, like how the end-user employs the technology, and the maintenance of the system. Some cautionary texts include stories of users ignoring nature outside of their vehicles. Encouraging readers to pay more attention to natural surroundings reinforces the view that the world can be dangerous, unpredictable, or unfamiliar. The discourse

encourages skipping the “become familiar with” part by using the technology with little “cost” to the user. That encouragement warns people about getting to know their surroundings. It proposes a relationship with nature that could be a real problem if GPS is not available.

The expression of power through control by promise or threat is manifest in the discourse of functionalism. The key functions of people in society are to work and to consume, and the discourse in the texts refers to commuting and finding that elusive café or toy store, making GPS a key functional device in society. GPS tames a confusing and complex world and offers instant navigation ability and the promise to never face the threat of being lost.

Control through Exertion of or Submission to Authority. GPS units are futuristic tools for “finding one’s way” or locating something in the world, although there is little finding or locating carried out by the person who simply listens to a voice saying where to go. There is the panoptic aspect of being able to locate anything anywhere on the surface of the earth, with the help of a massive system that remains invisible to most of the users. Users then come to trust and rely on the god like system as an authority.

Another aspect of submission to authority involves the U.S. military. Media text authors rely on sentiments of patriotism and “our boys” (and girls)—and the use of GPS by veterans and current soldiers, as an appeal to get consumers on board with GPS. Concepts of freedom, protection, and safety reinforce what the military provides to the civilian populace, and so again another reason emerges to support the GPS system. But even more prominent is the association of technology with the military. Technologies are a supposed benefit that the military handed down to the civilian population and the functionalism of technology takes over as the authority. The texts do not suggest questioning the GPS voice or the belief in the technology making one’s life better, easier, and more by implication fulfilling.

A third area of authority in the discourse rests with experts. Expert authority resides with the authorial voices who have done research for the consumer; the experts who the writers; and the company and industry figures who know their product inside and out. Each of these experts is persuasive in different ways. In building a balanced view, writers call on the user not wanting to admit to wasting money to promote GPS, and the company and industry representatives have only good to say. All involved exert authority to promote GPS as progress.

A 2008 article in *USA Today* talks about cases when the map system GPS relies on is wrong or has missing data. The corporations request that consumers provide corrections, harnessing free labor for the companies and reducing their expenses. Even if one adopts another perspective, cooperative engagement and interaction will improve the maps that work for the common good also maintains profits for the company. In either case the discourse involves a submission to authority.

For one or two hundred dollars, GPS technology “allows” freedom of movement by marking a trail and starting point, through urban, suburban, and wilderness landscapes. That allowance exerts authority to displace old techniques—paper maps, analog compasses or asking directions. Users also dominate natural settings by using GPS to collect information in the unit and retrieve it later. But the early discourse hints at an imagined user being outdoors, and those users account for limited sales. The later discourse seeks to include “indoor” users, that is, consumers who move about in their vehicles as drivers or where location feeds into shopping and other consumer activities. In both cases the GPS exerts authority over the landscape and urban centers with the users new navigational power.

Power, expressed by control through exertion of or submission to authority, comes about in the discourse by suggesting people join everyone else in acquiring and using GPS as the preferred way to get around and find what one wants. The units become part of the culture, and the military plays a part as an authority for users to look up to and appreciate. Experts exert power over the readers by sharing their knowledge and experience in the

published articles. And users are entrusted with power and control in their use of the device to master the landscape and take charge of time and efficiency in their lives as consumers.

Technical Control through Objects and Means and Methods. The articles juxtapose expertise on one hand with populism on the other. GPS technology works in one way for the knowledgeable few, who have the option of moving through nature with no GPS necessary, and another way rhetorically for the general consumer, making use of “GPS for everyone,” not just for the experts. The specialty magazines focus on expertise, treating their readers as a select elite with the know-how to operate in nature, continuing to function despite the limitations of GPS technology and even when the units fail. The discourse places the expert above the machine, its controller, with the power to employ technology, or not. That choice is one form of freedom, and it comes at a price, by subjugating its audience to expertise. The articles list other kinds of expert knowledge and urge readers to believe in, learn, and act within an ideology of expertise.

The later articles reveal women’s growing affinity with GPS. They find it useful for navigating the city while doing errands that fill their busy days, making them more efficient. They feel safer in navigating unfamiliar areas, freed from the male-oriented system of maps and the need to ask strangers while navigating. One could argue that GPS equalizes across earlier power divides, gender as a case in point. Pacey (1983) and the idea of expertise is again relevant here, in that the goal of efficiency leaves many other appealing aspects of navigating without GPS out of the picture, like learning the neighborhoods that one drives through and seeing the sights. But it may also maintain inequality so that women continue to do the chores, shopping and errands as well as work, with GPS making it possible.

An article from *DesertUSA* (2009) asks how maps that look so good can lead people to make foolish mistakes? It is referring to the incidents of travelers following and trusting the GPS instructions, disbelieving or ignoring what they see outside and getting into trouble. Such cases provide a good example of technical control. Consumers have been thoroughly

persuaded by the discourse and the representation of reality to trust the technology over their own senses, or at least the story makes that surface argument while promoting “better” use.

The popular way of imagining GPS-for-all is mainly through the market, as prices of the units continue to fall and features multiply. In its origins, GPS already has an application for all of society, as a military project designed to protect civilians by killing more effectively and destroying locations more precisely. GPS guides the work to “neutralize” the enemy. Neutrality toward military applications tacitly asserts that GPS helps protect the populace, ensuring its freedom. The articles occasionally mention military aspects of GPS, although an alternative is to refer to consumer use as a “civilian” benefit, added value, or extra, as well as a boost for the economy through consumption. The populist aspect of the articles makes the technology central to consumer choice. The choice for the masses is another form of freedom—to move unfettered by the demands of expert knowledge, which comes embedded in the machine. It is a deskilling of the users as well, who no longer need to know or learn where they are, where they are going or how to get there, but can just listen to the voice and follow its instructions. But that freedom comes at the price not only of purchasing the technology but also of subscribing to a technological ideology that invests vast sums and ignores environmental consequences unless forced (through regulation). The environment, like the military gets little mention, but is relied on to increase the appeal of the technology, by naturalizing it in the rhetoric. The bits of information that might really matter to many users as people are ditched in favor of a futuristic, technological fantasy created for consumers in their role in global capitalism.

The power of technical control is highly valued in U.S. American society and is expressed through the idea of the expert. The purchaser of a GPS unit instantly becomes an expert navigator. That power is also expressed through the belief and trust in the GPS system, and finally that power is expressed in a commitment to the market, as the entity that provides the things consumers need.

Conclusion

The point of this research was to try and understand better how the dominant media discourse about the environment depicts the nature-human relationship, by looking at common, everyday media communication and how that communication changes over time and context. The GPS study accomplished this well, pointing to changes in the discourse that alienate people from nature and how the device paradigm exposes various injustices of the technology. Further research can expand and update the analysis of the print and online discourse surrounding consumer GPS, though the context is different. A different tack be through the audience and seek texts from users to get a sense of their experience with the technology, their communication about it and their own nature-human relationship, for a different perspective of the discourse. This can include interviews with users and non-users or comments by users on online forums about GPS. The United States is always an unusual case and so further research should look at GPS discourse in other countries. Surveillance comes into play with the multitude of “location services” on computers, the growing use of smart phones and tablet computers, and the emergence of geotagging of photos from GPS enabled cameras. Deeper analyses could expand on the symbolic and representative communication via the interface of GPS units. Visual rhetoric and semiotics, would then add to critical discourse analysis. And other nature-human interfaces for business such as signage, commercials, or grocery stores deserve attention to fill out the picture of commercial representations of the earth.

What kind of story do consumers get about GPS? The goal of this research was to understand how people become discouraged regarding the environment. To find out has required examining the depiction of the nature-human relationship underlying the texts about a business topic. For mainstream consumer and business information, nature gets in the way of technology and is difficult and slow. Technology is easier to learn and use than nature or the older and simpler technologies that preceded GPS, but much of the injustice

is hidden and engagement with the world and people lost with the technology. Technology appears to make people safer in nature, and to make that case, refers to technology using natural terms and metaphors. The authors usually promote technology as better than the old way(s) and encourage people to skip “getting to know” natural surroundings, and instead view the human relationship with nature as discouraging. Consumerism then takes precedence over other goals for the media, at the same time blinding consumers to the very important relationship humans have with nature.

To give the writers and their texts credit, technology has become necessary for some to live in the current technological world. People can save gas by avoiding traffic jams with GPS, taxi drivers and visitors don't need to know a city in order to get to a location. But the experience and knowledge beyond efficient and direct routes is lost.

What does the discourse mean for how people engage or disengage with the natural world? In communicating the relationship between humans and nature, popular business discourse depicts a peculiar relationship—that nature should play little or no part in navigating around the earth and that the systems engage with nature technologically, leaving users little to no connection to the earth. When articles directly address the relationship, they talk of an annoyance with nature, or a hindrance it causes to moving about or to the functioning of the technology. The power in consumer discourse gives technology a form of dominance over constraints the natural world imposes and gives humans freedom from the limitations that nature imposes. But the accounting fails to add up when the costs of environmental degradation and living unsustainably are added in. The counter-discourse from outdoor specialty sources takes a reasonable stance on GPS and the nature-human relationship, but mainly preach to the choir, keeping the connection to nature within their club of experts.

Promoting the idea of nature as an annoyance or getting in the way of human activity discourages engagement with it. A *just get it out of the way and let me do my thing* attitude blinds people to their reliance on the natural world. Furthering the *nature plays no part in navigating*

verges on the irresponsible because nature provides so many signs for humans to find where they are or are heading, from the direction the wind is blowing to where the sun is shining. The quest for “play-no-part” in nature meanwhile degrades the resources humans must rely on.

In a time when people’s relationship with nature and mastery (or lack of) has become a major concern, being completely absorbed in the consumer-economic and technological world of humans may be unwise. An overarching feeling from the texts is that of a continual increase in our mastery over the earth and people with technology. At the same time, the discourse discourages interaction with and appreciation for the natural.

The GPS system is one example of technological consumer discourse. Other areas of communication do the same. Communicators have a responsibility to give a more complete picture of the human connection to nature and to help reconnect people with nature because people are part of nature. A later article from *AMC Outdoor* (July/August 2009), the online member magazine for the Appalachian Mountain Club, provides a positive example by indicating that GPS is an add-on. The basic skills needed to navigate the outdoors start from using one’s eyes, ears, nose, and other senses.

Maybe Google Earth and other mapping programs will allow a larger engagement with the earth as a single ecosystem. They provide a virtual presence so that, for instance, one can revel in a close view of Yosemite. Virtual presence may be more sustainable than actual travel, but it substitutes screen time for actual engagement with nature. As countries, companies, and communities are move toward more ecological sustainability, they may open up questioning and challenging of the dominant social paradigm. Business information may co-opt sustainability discourse, but it does bring a chance to build a discourse that acknowledges other perspectives on the nature-human relationship to the benefit of all.

CHAPTER 6. The Alienation of Humans from Nature

The current and longstanding environmental issues in the U.S. draw from power relationships in media discourse that create environmental and social injustice. To understand how power works here, I compare and contrast the studies on the content, creation, dissemination and promotion of media discourse. Business and news media play a major role in producing and distributing discourse, dominated by economic progress and techno-scientific perspectives that sidestep and obscure environmental concerns and social relationships, leading to discouragement and alienation of people from nature. Unpacking what this discouragement is involves a critique of power, and the evidence found in the analysis has implications for the theory and policy of environmental communication.

Understanding how common mediated communication discourages humans in their relationship with nature is a complicated task. Discouragement takes place in three areas: communication (through media), control (with technology), and understanding (of self). Communication conveys a sentiment or feeling of discouragement (McKinley, 2008; Estok, 2009), when people become discouraged by the representation of the world as a dystopia (fear of the future) or discouraged by a fear of nature (ecophobia). “Representations of nature as an opponent that hurts, hinders, threatens, or kills us—regardless of the philosophical value or disvalue of the ecosystemic functions of the dynamics being represented—are ecophobic” (Estok, 2009, p. 209). Control relates to action and how people are discouraged from direct engagement with the natural world, or from taking action for social change on environmental issues. They are offered alternatives, for example, technology as interface to the world or a way to engage with a virtual world. Philosophers of technology (e.g., Feenberg, 2005; Pacey, 1999) have written about the second area extensively, and Borgmann’s “device paradigm” plays a role in depicting the nature-human relationship, by hiding technology’s connection to the natural world, and de-skilling people. The last area of discouragement is with the self through understanding (Mead, 1948, pp.

184-5) and how people find discouraging their understanding of the world and feelings toward it. As a result, they may be discouraged to follow a path they sense as right and instead go along with media and consumer society.

This research makes three contributions to the field of environmental communication. First combining critical discourse analysis strategies, which expand the understanding of power in environmental discourse points to ways of correcting the way people in power communicate the nature-human relationship. Second, a temporal or escalating dimension improves on the aspects of power employed from Reisigl and Wodak (2009). Third is the idea of the nature-human interface as environmental communication.

To alienate people from nature, when they are part of nature, blinds them to their dependence on the world. A change in the way people, the media, and business communicate the nature-human relationship is needed. This research is one point to begin the change.

The Discourse of News, Business, and Nature

The research here pushes beyond prior studies of environmental discourse, to look at the discouraging elements in the discourse. Previous studies look at media discourse of nature and reveal a domestication of nature, a technologization of nature, a consumer focus, and contradictions in the human relationships with nature. My two studies bear these patterns out. But there is a bigger issue these studies engage with. Media discourse maintains and may worsen the nature-culture divide by discouraging almost any unmediated human interaction with nature.

To understand how people find talk about nature (from the media and business) discouraging, my critical analysis of discourse in TV weather in Boston and in stories from business, reviewers, and other writers on GPS technology finds they depict a “battle” with nature (in news) and a “market” for defensive gadgets. In TV weather people are asked to watch or prepare for a protracted war. In the GPS stories people are encouraged to

purchase the technology rather than learn something to solve the problem the media set up. These together distance humans from nature.

The two studies find different approaches to the human relationship with nature. TV weather discourse asserts the need for a defensive stance, telling viewers what the world is like and using technology in the hands of the meteorologist to prepare viewers and suggest protections before they encounter nature. The GPS discourse sets up an offensive stance, telling users what to do about nature and putting a technological tool in their hands so that they can find their destination through the challenges of the world outside.

Answering the main research questions required looking at different aspects of power (Reisigl and Wodak, 2009) contained in the discourse, text and context for each study in relation to the other study. The aspects of power begin with an attachment to authority, either an exertion of or submission to it, and technical control through objects and other means. The next level of power is control through threats and promises, and the most extreme level of power is through action and violence.

The temporal levels proposed here might be better explained through a commonplace example. Say the power struggle is between a parent and teenager. Parents begin with their authority in controlling an unruly child, and then they might use threats or promises to appease the kid. At the same time they would use technology and other means of control, maybe in combination with threats or promises, but the ultimate (or lowest) expression of power is through action or violence, when the parents call the cops or take out the belt. Although the aspects of power overlap to some degree, there seems to be a procedural or temporal dimension to them that my studies expose, because meteorologists and business writers depict the human relationship to nature more or less in this manner. For the weather, it begins with authority from science and expertise of the weathercaster. Then you have the discourse with threats from storms and promises of better weather later, say. Technology is used along with rhetoric to be persuasive and keep people watching (and as eyes for advertising). The ultimate is the unsustainable business of high-tech media

reporting and even the added reporting for extreme or unusual weather. The business news on GPS takes a similar track.

Inequalities and injustices are often a by-product of power relations. To answer the second question, I look toward a popular configuration of the world—sustainability—as intersecting economic, social and environmental spheres and the associated inequalities and injustices. To answer the last question on discouragement, I refer back to the areas of communication, control (through technology), and understanding (of the self) described at the start of this chapter.

Power in the discourse to depict the nature-human relationship

The base aspects of power in the studies include attachments to several authorities. The U.S. government provides and manages the systems of satellites for weather and GPS. Both can lead to submission to authority for sense of safety and protection, something the public may generally expect the government to provide. Both study systems are highly technical and scientific and have a history of dominating nature. For weather, science and technology provide information to the meteorologists far beyond what human senses can discern and also craft the way of thinking and talking about the world. For navigation too, since technology again works in the background, beyond what most users discern.

Meteorologists exhibit authority as experts. They have become indispensable to an audience that relies on expert authority and to the broadcasters who rely on the advertising dollars brought in by the meteorologists. The GPS storywriters take on the expert role as well, having done research and interviewing among other experts. The business of GPS has a powerful grip on consumers through a discourse promoted in the bulk of stories about GPS. Nature is depicted as difficult, slow and getting in the way of humans and the technology. Another attachment is to suppliers of interfaces for that GPS information, the consultants who style it for the latest appearance and function, along with all the information, troubleshooting, repair and support of equipment. If these experts could break out of the

confines of their own expertise and offer something of more value to the public this would be an improvement. For example, educating people on how some weather is valuable, like when rain is needed for drought conditions. The same goes for GPS in that there are some applications that improve peoples' lives and get them more in touch with nature or their local environment.

The next level of power comes by way of technical control through objects and means of production. The discourse in GPS articles essentially says that people are not complete without GPS or that they need it to function in the world today. It is the perfect claim to sell a GPS unit to every human and builds demand for production of the product. It is also a dangerous claim that human senses are not sufficient for interaction with nature, alienating people from the earth and themselves and substituting a false sense of security via the technology.

For the weather, technical control is by way of the live broadcast, the use of impressive graphics and satellite imagery, occasional video sources, and the stories told. For example, technical control is embedded in the weathercasts use of color in radar images. Green (associated with *Go!*) is non-threatening rain, and red (associated with *Stop!*) and purple are used for the most intense and threat-filled rainstorms.

Control through threats and promises constitute another aspect or layer of power. Both studies find this aspect of power in the discourse. The critical analysis exposes a picture of nature as dangerous and as promoting a naturalization of technology. In the unfamiliar and dangerous world outside, GPS promises to guide and protect the user. At the same time it promises efficiency (the quickest and shortest route), especially when plugged into a reliable power source (the automobile). The vehicle drivers benefit from the promises and are protected from the dangers. But some expert users, the recreationalists, may find the benefits outweighed by the dangers, at least if one takes the stories at face value. Weathercasters alert people to what is coming their way, so that they can prepare for it, whether threat of a storm or promise of some "nice" weather.

GPS discourse with respect to nature-human relations in refers to the “featureless desert” and the Gulf war, where GPS was employed for the location and navigation of troops and the targeting of weapons. The phrase may come from text that the business reports also picked up, possibly a Rand Report (Pace et al., 1995, p. 250), a good example of intertextuality. To call a desert featureless takes a particular perspective, one is distanced from nature, and diminishes nature by calling it a threat, to demonstrate the need for GPS.

Weather journalism and business stories both promote knowing what the future may bring, for protection and comfort. GPS warns the user of upcoming traffic or roadwork. In the TV discourse, weathercasters alert people to what is coming their way, so that they can prepare for it, using threats and promises, such as “the threat of a thunderstorm” or “I promise to get the sun out this afternoon.” It feeds the hearers’ planning of their lives according to the weather. It proposes a problem-solving activity for how to do what you want, despite the variability of the weather (especially in New England). To have an obedient population when there are real dangers out in the world can be an acceptable thing. But when that obedience flows over into a daily way of living to avoid interaction with nature or feel the need for protection, the power dynamic instills a negative relationship with the earth and its processes. Although weather forecasting is a promise to people that they can plan their lives, the weathercaster sidesteps blame by making it the fault of the weather when conditions are different and plans must change.

As power relations escalate and the less powerful citizen or consumer does not respond (like the teen in the analogy), eventually the powerful get to the point they exhibit dominance through action and violence. An example is how cinemagoers become resistant to pre-film advertising, and so advertisers intensify the images or sound to assault the sense and recapture consumer attention. An aspect of power through action in the weather arises because of the visual dimension of television. Weathercasters gesture over the animated maps, as if controlling the weather in a choreographed performance with the technology,

making their presence and action seem important, even necessary. To show the audience the control they have over the weather puts the meteorologist in a position of power.

Action for the GPS study rests in the purchase and use of the unit. For consumers to battle the confusing and complicated world, they need to take action, buy a GPS device, and use it out in the world, but in the protected space of their automobile, to reap the benefits. The weather approaches the “battle” with the atmosphere differently, by getting the consumer to continue to watch the program in comfort at home (and be exposed instead to advertising). The action of the weather on the screen helps keep people watching.

The meteorologists use battle, struggle, and fight metaphors when describing the weather. The term “front” comes from military terminology, infusing a violent war sense to weather forecasting (Ross, 1991). Weather that is “marching” into an area gives a much different feel to the human relationship with nature than a weather system that is flowing or waltzing into the region. In an unstated contradiction, nature as the context for modern technologies is the source of raw materials for all parts of the GPS and weather satellite systems, as well as the sink for pollution and waste those technologies produce. Both can be considered violent actions against the earth and its ecosystems.

The escalation of power in the discourse runs from authority in government, science and technology, and experts—from different systems and levels. The next level of power is with technical control and means. Here technology is used to represent nature in particular propositions: first that humans need technology, and second that technology communicates a particular relationship with the world. Another level is power is through threats and promises. Here nature is often dangerous or getting in the way, technologies can be helpful, and predictions of the future take place. A last instance of action and violence comes through in the rhetoric and metaphors used, the consumption references, and the visual and resource-intensive nature of screen-based computer technologies.

Power Relations in the Discourse: Inequality and Injustice for Nature and Humans

A common way to think about the human relationship with nature is through the idea of sustainability. To answer the question of injustice through the filter of sustainability requires looking at the injustice and inequality by its organization into economic, social and environmental parts. These power relations are consequences of the depicted nature-human relationship in the discourse.

Tech industries take action and support violence with people and the earth. They are elemental in producing GPS units and cars, satellites and TV technology. They exert physical power over nature from resource extraction to packaging, shipping, and waste disposal, which destroy land and pollute air and water, produce externalities to the economic system, and ultimately affect human well being. In the business of producing technical equipment, three aspects of power work to create injustice and inequality.

Within the discourse, the U.S. government and tech corporations maintain power through the support and use of GPS in active military operations and by tracking nuclear detonations. Their activity combines the social power and injustice of war with economic injustice. Electronic waste, such as the discarding of old or broken electronic technology instead of repair or re-use, has become an issue of social and environmental injustice, when waste is shipped to developing countries. Those with few if any toxic waste policies or protection unknowingly expose workers to toxins while extracting the valuable materials and dumping the rest, and consumers bear the continual cost of replacement.

Television weather, in a parallel vein, requires and supports space transport of satellites and accompanying space junk pollution and as an economic venture, encourages consumptive, wasteful, polluting activities, such as high-speed boating, massive sporting events, or more golf courses. The things to do when the weather is “nice” are a cause of social and environmental injustice.

The indirect connection to the military associates civilian GPS with the injustices of war and other military conduct. This makes the public part of a military-style effort and

conceptually supports social and environmental injustices. Jumping on the bandwagon of GPS, to be part of that culture, can alienate those not able to partake financially or those unwilling to adopt and value the technology. The support for the military in protecting “freedom” promotes a form of patriotism that not all U.S. Americans condone—two more elements of social and economic injustice.

In GPS discourse, the user is transformed into an expert navigator, who no longer needs to ask for directions (avoiding society) or wrestle with hard-to-read maps and a tangle of roads. When the technology fails or when the maps are not correct or up to date, the technology then leaves consumers with little knowledge of where they are and where to go, remaining fearful of unknown others and the unknown world beyond the windshield of the car. It is not clear that GPS users would want society to end up like that.

With TV weather an injustice occurs if audiences become dependent on the weathercasters for knowing what the weather is. Audience dependence on TV weather and forecasting trades individual human skills for advertising presence, which the media spread. Audiences rely on expert authority and on a standard, crafted way of depicting the human relation with nature that isn't sustainable.

Looking at TV weather and GPS discourse in terms of sustainability shows that two main displayers of nature, news and business communication take part in the inequality and injustices arising from the discourse and the context of commercial media systems.

Features of Discourse Contributing to Environmental “Discouragement”

The triad of communication, technology, and understanding are a framework to explain discouragement at least in part. Common communication from news media and business in the United States reinforces the dominant social paradigm of capitalist, consumer culture and rational/progress ways of thinking, all by way of science and technology (Merchant, 1990). It continues a long tradition of the dichotomy between

humans and nature, often treating the relations as a battle or pointing to nature merely as a problem for humans.

Data and measurements are used to impress and persuade the consumer/citizen. Stories include a past, present, and future that are often rosier or give people something to look forward to. Authority is also used as a persuasive measure. Experts, science, and government, all in an effort to protect people, play a part in persuading the public of the disagreeable qualities of the natural world.

Obvious, persuasive elements make up the discourse. The use of experts as authority in the GPS business stories contributes to power through how promoters and reviewers talk about GPS devices. The information they share persuades prospective users to move toward GPS use rather than toward navigation by skill, memory and knowledge. In TV weather, action and violence come about in different ways, so that action is getting “out there” when the weather is good or taking precautions when danger is in the air. Violence also comes in the form of showing extreme weather clips and colorful radar animations. The most intense weather is shown in dark red and purple, colors associated with blood and bruises, rather than in varying shades of blue, the color usually associated with water.

The use of threats and promises as a form of power aimed at control is effective in depicting a particular relationship with nature. Both the weathercast and GPS depict nature and the world as dangerous, which can lead to fear and discouragement through words. TV weather is also designed to keep people watching by breaking the forecast up into small segments and using phrases such as “We’ll be right back with the forecast.” Reporting on extreme weather brings excitement to the viewers and keeps them watching television, not going outdoors, adding a form of physical discouragement. The weather will refer to atmospheric conditions, like a high mold or pollen count, as a threat, but even a warm, sunny weekend that never occurs is a broken promise that can lead to discouragements more about nature than about media.

The power of the discourse examined in these studies rests in the “battle with nature” metaphor, which in TV weather leaves citizens without skills to understand the weather and a picture of the natural world in conflict. In the GPS stories, nature (including humans) may present a similar annoyance, and the solution is to purchase technology that drains the experience of travel away and replaces it with an electronic interface that gets one to a destination in the most detached efficient manner.

Technology and Control. Technology as used in or promoted by media distances people from the natural world in several ways. It can shift their focus and attention away from nature, it can stand between people and nature, or it can represent nature in a way that masks the human relation with it.

The power of technology in the studies easily shifts focus and attention away from nature and the human relationship with it. One way TV weather pushes the technical is seen in the animated maps that begin “yesterday” and extend into “tomorrow” in one seamless animation that makes no distinction between data actually collected and data generated by prediction models. It reaches the viewer as a “this is what’s gonna happen” take on the world, which excludes other options, although in extreme weather events, they often discuss what the different computer models predict. The map asserts technical control through the TV, the meteorologist, and the layers of technology used to produce the broadcast and information. The discourse also employs threats and promises in ways that place the user in a technologized world, safe and capable of handling the difficult or dangerous world out there, effectively discouraging engagement with nature. By pushing the use of technology, TV weather segments seem to imply that a user who feels technical power will no longer want to hone human skills or rely on them or signals from nature, directly discouraging engagement with nature.

The GPS study also reveals control that discourages engagement with nature by providing all of the technical means of navigation in the hands of the user. Little to no

nature skills or knowledge are necessary on the part of the user, because the GPS system and transceiver handle most of what humans formerly did, effectively reducing contact with the world through to the final destination (in theory). Automobile drivers who use GPS can be thought of as being encapsulated (De Caeter, 2001), in fact doubly by way of being in a vehicle and engaging with the screen of a GPS device.

Representations of nature or the world abound in the two studies. Visual imaging of nature simplifies the world, tossing out unnecessary information and connections that fail to serve the purposes of the market and consumer. Andrew Feenberg, in his book critiquing technology, explains it this way:

Technology is a two-sided phenomenon: on the one hand the operator, on the other the object. Where both operator and object are human beings, technical action is an exercise of power. Where, further, society is organized around technology, technological power is the principal form of power in the society. It is realized through designs, which narrow the range of interests and concerns that can be represented by the normal functioning of the technology and the institutions which depend on it. This narrowing distorts the structure of experience and causes human suffering and damage to the natural environment. (2005, p. 49)

His solution is for people to be included in the design process, to open “up technology to a wider range of interests and concerns” that would guide the redesign of technologies to fit natural systems better.

Understanding (Self). Self-understanding can come in a range from those creating and presenting the discourse to the reception of it by the researcher or consumer/citizen. This understanding comes from the experience and interaction people have with the world around them. Human inhabitants of the West are exposed in varying degrees to media but

the average estimate for the year 2015 is about 15 hours a day (Short, 2013), which includes using multiple sources at once. The capacity for molding people's perspective on their relationship with nature may be large.

How people see and understand themselves comes from their experiences with the world and society (Mead, 1948). If their experience of the world is mainly, or even half, experienced through the lens of mediation, the media used have some input on how they understand their relationship with nature.

The different technics of media as authority in these studies see nature as unreasonable, unreliable, and not conforming to human needs. The view can discourage engagement and promote dissatisfaction with nature. It also leads to incompetence. If GPS users give up the responsibility of finding their way to the destination they seek, handing that duty to the technology, their consumer choice says something about their capability as a human.

For the West to reduce its consumption of energy and other resources, to alleviate inequalities and injustices around the world, Western city dwellers must learn basic survival skills and use tools sufficient to lead a fulfilling life. Those who learn a little meteorology when they are young could dispense with the drama and dependence on expensive technologies that diminish the human relationship with nature. At the same time, Media industries need to adopt sustainable practices in all areas of their production. TV weather doesn't need to go away completely, but this brings to mind Ivan Illich's *Tools for Conviviality* (1973), which advocates rethinking the need for overblown technology that distances people from the world, makes the rich richer, and generates injustice.

The evidence from my studies indicates the opposite happening—people are reliant on more complex technical systems, more electronic devices that consume more energy. Illich summarizes this way: “The pooling of stores of information, the building up of a knowledge stock, the attempt to overwhelm present problems by the introduction of more science is the ultimate attempt to solve a crisis by escalation” (1973, p. 16). The situation has

implications for theory and policy. For theory, this research first contributes to the field by constructing a hybrid analysis using Reisigl and Wodak's discourse-historical analysis and Dryzek's epistemological analysis of environmental communication as a way to expand the understanding of how the nature-human relationship is depicted in common communication. My research, second, contributes the idea of temporal or escalating levels as a dimension to the four aspects of power used in the analysis outlined by Reisigl and Wodak (2009).

For policy, this research contributes to the field by expanding what is known about the discourse, which can be useful in education. College educators of future meteorologists and weathercasters could include the critical environmental communication concepts expanded on here to push for terminology and rhetoric that avoids discouraging audiences in their relationship with nature. Further study could examine the value and impact of the ideas on budding weathercasters. Outdoor retailers might see it in their and society's best interest when training prospective GPS users to adopt the insights from the AMC and the outdoor specialty magazines first train people in using their senses outdoors as essential backup with map and compass skills, and introduce GPS as an add-on if needed.

Besides looking at education, future research on environmental discourse should explore other sectors of society, especially government, to see if the pattern of discouraging discourse extends into the regulation of natural spaces, for instance. An analysis of discourse about nature in sectors beyond business and media will flesh out this research to cover a large area of common communication about the nature-human relationship in the United States. Of course, comparative studies of different countries would also be valuable to this line of research. The goal is to help the world adopt the new ecological paradigm and a more convivial use of technology.

Industrial life is saturated with old and new media, and people interact with an extraordinary range of devices and during extended periods of exposure. Communication media, which include GPS as well as weathercasts, disseminate and promote discourse from

the current social paradigm that mainly serves business for the profit of owners. At the same time the philosophy of technology literature argues that industrial nations with advanced technologies damage the environment, regardless of capitalism or socialism. The profit motive is an important element of the state of affairs for the environment and society today, but not the only element. Exposure to such discourse helps people buy into and participate in the social paradigm. Placing more value on direct experiences with nature rather than with moneymaking products is one way to maintain nature in a state that can support healthy humans and ecosystems into the future.

In a world at serious risk of ecological collapse from human over-consumption, why would policymakers continue to allow the promotion of systems and activities that lead to collapse of the world the people so depend on? TV weather and GPS are a small part of the guilty systems and activities, but by looking at them closely and critically one can see that so many, if not all of the parts need rethinking and reworking to increase engagement and decrease use and abuse of nature.

An alternative story is of citizens who learn about their local area, through experiencing it, walking around, looking at the sky, feeling the air, noticing the landmarks, getting oriented and making associations. Being steeped in the medium of nature is how to know it from primary sources. Then once technology is brought into learning, it should be sufficient for the task, available to nearly anyone, and have little to no impact on the environment. Technologies can then extend people's senses to give a bigger picture of the world, but anchored to their understanding from experience.

REFERENCES

- A Handful of Dust. (1999, August 8). *New York Times*, Sunday, Late Edition Final, Sect. 4, p. 14.
- Adorno, T. W. (1945). A social critique of radio music. From the *Kenyon Review*. In J. D. Peters and P. Simonson (Eds.). (2004), *Mass Communication and American Social Thought: Key Texts, 1919-1968*. Lanham, MD: Rowman & Littlefield.
- Andrejevic, M. (2007). *iSpy: Surveillance and Power in the Interactive Era*. Lawrence, KS: University Press of Kansas.
- Aporta, C., and Higgs, E. (2005). Satellite culture: Global positioning systems, Inuit wayfinding, and the need for a new account of technology. *Current Anthropology*, 46(5), 729-753.
- Bakhtin, M. M. (1986). *Speech Genres and Other Late Essays*. Trans. by Vern W. McGee. Austin, TX: University of Texas Press.
- Barnhurst, K., and Mutz, D. (1997). American journalism and the decline in event-centered reporting. *Journal of Communication*, 47(4), 27-53.
- Barnhurst, K., and Nerone, J. (2001). *The Form of News*. New York: The Guilford Press.
- Barnhurst, K. G. (2005). News ideology in the twentieth century. In S. Høyer and H. Pöttker (Eds.), *Diffusion of the News Paradigm, 1850-2000* (pp. 239-262). Gothenburg, Sweden: Nordicom.
- Beder, S. (2004). Molding and Manipulating the News. In R. White (Ed.), *Controversies in Environmental Sociology* (pp. 204-220). Melbourne: Cambridge University Press.
- Bell, A. (1991). *The Language of News Media*. Oxford: Blackwell.
- Bell, A., and Garrett, P. (1998). *Approaches to Media Discourse*. Oxford: Blackwell.
- Biemiller, L. (2010, November 22). In the iPhone era, road maps fade into history. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/blogs/postcards/in-the-iphone-era-road-maps-fade-into-history>.

- Black, E. (1970). The second persona. *Quarterly Journal of Speech*, 56(2), 109–119.
- Blommaert, J. 2005. *Discourse Analysis: A Critical Introduction*. Cambridge: Cambridge University Press.
- Borgmann, A. (1984). *Technology and the Character of Contemporary Life: A Philosophical Inquiry*. Chicago, IL: University of Chicago Press.
- Bremner, J. (2009, August 10th). Beware: Your GPS could kill you. *Desert USA News Blog*. Retrieved from <http://www.desertusa.com/desertblog/?p=6226>.
- Butteriss, C., et al. (2001). Discourse analysis: A technique to assist conflict management in environmental policy development. *Australian Journal of Environmental Management*, 8(1), 48–58.
- Buell, L. (2005) *The Future of Environmental Criticism: Environmental Crisis and Literary Imagination*. Hoboken, NJ: Wiley-Blackwell.
- Carey, J. (2009). *Communication as Culture: Essays on Media and Society* (Rev. ed.). New York: Routledge.
- Carey, J. W. (1997). The Chicago School and the history of mass communication research. In E. S. Munson and C. A. Warren (Eds.), *James Carey: A Critical Reader* (pp. 14–33). Minneapolis: University of Minnesota Press.
- Cartwright, L., Penley, C., and Treichler, P. (Eds.). (1998). Introduction: Paradoxes of visibility. *The Visible Woman: Imaging Technologies, Gender, and Science*. New York: New York University Press.
- Carvalho, A. (2000). Discourse analysis and media texts: A critical reading of analytical tools. Paper presented at the International Conference on Logic and Methodology, RC 33, International Sociology Association, Köln, 3–6 October.
- Caution: Watch where you're going. GPS devices not always up-to-date. (2009, March 12). *USA Today*, p. A3.

- Christians, C. (2000). Ethics and politics in qualitative research. In N. Denzin and S. Lincoln, (Eds.), *Handbook of Qualitative Research* (3rd ed., pp. 139–164). Thousand Oaks, CA: Sage.
- Colier, M. (2001). Approaches to analysis in visual anthropology. In T. Van Leeuwen and C. Jewitt (Eds.), *The Handbook of Visual Analysis* (pp. 36–44). London: Sage.
- Collins, C., and Jones, P. (2006). Analysis of discourse as “a form of history writing”: A critique of critical discourse analysis and an illustration of a cultural–historical alternative. *Atlantic Journal of Communication*, 14(1), 51–69.
- Corporon, J. (1999). Benchmarking: What four quality stations can teach you. *Local TV News Project*. Washington, DC: Project for Excellence in Journalism. Retrieved from <http://www.journalism.org/node/393>.
- Corradetti, C. (2005). The Frankfurt School and Critical Theory. *The Internet Encyclopedia of Philosophy*. Retrieved from <http://www.iep.utm.edu/frankfur>.
- Cox, J. R. (2006). *Environmental Communication and the Public Sphere*. Thousand Oaks, CA: Sage.
- Cox, R. (2007). Nature’s “crisis disciplines”: Does environmental communication have an ethical duty? *Environmental Communication: A Journal of Nature and Culture*, 1(1), 5–20.
- Dayan, D., and Katz, E. (1992). *Media Events: The Live Broadcasting of History*. Cambridge: Harvard University Press.
- De Caeter, L. (2001). The capsule and the network: Preliminary notes for a general theory. *OASE Journal for Architecture*, 54, 122–134.
- DeLuca, K. M. (1999). *Image Politics: The New Rhetoric of Environmental Activism*. New York: Guilford Press.
- Dennis, S. (1998, August 17). GPS technology set to zoom into mainstream – F&S study. *Newsbytes.com*. Retrieved from LexisNexis.
- Denzin, N., and Giardina, M. (Eds.) (2011). *Qualitative Inquiry and Global Crises*. Walnut Creek, CA: Left Coast Press.

- Doherty, R., and Barnhurst, K. (2009). Controlling nature: Weathercasts on local television news. *Journal of Broadcasting & Electronic Media*, 53(2), 211–226.
- Dryzek, J. (2013). *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.
- du Gay, P., et al. (1997). Making sense of the Walkman. *Doing Cultural Studies: The Story of the Sony Walkman* (pp. 8–40). Thousand Oaks, CA: Sage.
- Ellul, J. (1964). Technological society (J. Wilkinson, Trans.). New York: Alfred A. Knopf.
- Engelbert, J. (2012). From cause to concern: Critical discourse analysis and extra-discursive interests. *Critical Approaches to Discourse Analysis across Disciplines*, 5(2), 54–71. Retrieved from <http://cadaad.net/journal>.
- Estok, S. C. E. (2009). Theorizing in a space of ambivalent openness: Ecocriticism and ecophobia. *Interdisciplinary Studies in Literature and Environment*, 16(2), 203–225.
- Fairclough, N. (1992). *Discourse and Social Change*. Cambridge: Polity.
- Fairclough, N. (2001). The dialectics of discourse. *Textus*, 14(2), 231–242.
- Fairclough, N. (2004). Semiotic aspects of social transformation and learning. In R. Rogers, (Ed.), *An Introduction to Critical Discourse Analysis in Education* (pp. 225–236). Mahwah, NJ: Lawrence Erlbaum.
- Fake Vegetables [podcast]. (2014, October 31). *The Splendid Table*. National Public Radio, Episode 569.
- Feenberg, A. (2005). Critical theory of technology: An overview. *Tailoring Biotechnologies*, 1(1), 47–64.
- Fine, G. A. (2010). *Authors of the Storm: Meteorology and the Culture of Prediction*. Chicago: University of Chicago Press.
- Fleetwood, N. (2006). Failing narratives, initiating technologies: Hurricane Katrina and the production of a weather media event. *American Quarterly*, 58(3), 767–789.
- Folkers, R. (1998, November 2). “You are here. Here’s how to get to there”: Navigation systems can help you find your way. *U.S. News & World Report*, 125(17), p. 62.

- Friedman H. S., DiMatteo, M. R., and Mertz, T. I. (1980). Nonverbal communication on television news: The facial expressions of broadcasters during coverage of a presidential election campaign. *Personality Social Psychology Bulletin* 6, 427–435. DOI: 10.1177/014616728063016.
- Gillis, J., and Chang K. (2014, May 12). Environment: Scientists warn of rising oceans from polar melt. *New York Times*. Retrieved from LexisNexis.
- Glotfelty, S. (1996). Literary studies in an age of environmental crisis. In C. Glotfelty and H. Fromm (Eds.), *The Ecocriticism Reader: Landmarks in Literary Ecology* (pp. xv–xxxvii). Athens, GA: University of Georgia Press.
- GPS-based car navigation systems set for growth, study says. (1998, November 16). *Satellite Week*. Retrieved from LexisNexis.
- Griffin, M. (2001). Camera as witness, image as sign: The study of visual communication in communication research. *Communication Yearbook*, 24, 432–463.
- Hajer, M., and Versteeg, W. (2005). A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives. *Journal of Environmental Policy & Planning*, 7(3), 175–184.
- Halford, P. (2004). *Storm Warning: The Origins of the Weather Forecast*. Phoenix Mill, UK: Sutton Publishing.
- Hansen, A. (2011). Communication, media and environment: Towards reconnecting research on the production, content and social implications of environmental communication. *International Communication Gazette*, 73(1–2), 7–25.
- Henson, R. (1990). *Television Weathercasting: A History*. London: McFarland.
- Henson, R. (2010). *Weather on the Air: A History of Broadcast Meteorology*. Boston: American Meteorological Society.

- High growth reported for the world GPS market forecast to 2013. (2009, April 23). *Business Wire*. Retrieved from <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aKq.Q3Ruf9Q>.
- Hodge, B. (2012). Ideology, identity, interaction: Contradictions and challenges for critical discourse analysis. *Critical Approaches to Discourse Analysis across Disciplines*, 5(2), 1-18. Retrieved from <http://cadaad.net/journal>.
- Howard, R. (1997, August 15). Canada's plan to outfish the U.S. attacked. *The Globe and Mail* (Canada), Friday, News Section, p. A8.
- Hulme, M. (2008). The conquering of climate: Discourses of fear and their dissolution. *The Geographical Journal*, 174(1), 7-11.
- Illich, I. (1973). *Tools for Conviviality*. New York: Marion Boyars.
- Increased fears about environment, but little change in consumer behavior, according to new National Geographic/GlobeScan study. (2014, September 26). *National Geographic*. Retrieved from <http://press.nationalgeographic.com/2014/09/26/greendex>.
- Ingraham, K. (2009, July/August). Navigation showdown: GPS, map and compass go toe to toe in the backcountry. *AMC Outdoors*. Retrieved from <http://www.outdoors.org/publications/outdoors/2009/features/gps-map-compass-challenge.cfm>.
- Jakobsen, P. O. (2012, September 20). The weather story: Adapting to an evolving market. *VizRT*. Retrieved from http://www.vizrt.com/news/newsgrid/35078/The_Weather_story_-_adapting_to_an_evolution_market.
- Jordan, R. (2005, October 19). On going mapless in a digital world: Engagement, simplicity, and the art of real-time navigation. *Backpacking Light*. Retrieved from <http://www.backpackinglight.com/cgi-bin/backpackinglight/mapless.html>.
- Kaplan, C. (2006). Precision targets: GPS and the militarization of U.S. consumer identity. *American Quarterly*, 58(3), 693-713.

- Kinneavy, J. L. (1971). *A Theory of Discourse: The Aims of Discourse*. Englewood Cliffs, NJ: Prentice-Hall.
- LaGessee, D. (2007, November 26). GPS navigation devices are doing more while costing less: A driving sense of direction. *U.S. News & World Report*. Retrieved from LexisNexis.
- Latour, B. (1987). *Science in Action*. Cambridge, MA: Harvard University Press.
- Lipowski, J. (2008, August 4). Consumers buy into GPS; Future looks bright for navigational tech. *The Washington Times*, p. B1.
- Love, G. (2003). *Practical Ecocriticism: Literature, Biology, and the Environment*. Charlottesville, VA: University of Virginia Press.
- MacDonald, R. H. (1987). *A Broadcast News Manual of Style*. New York: Longman.
- MacGilchrist, F. (2007). Positive discourse analysis: Contesting dominant discourses by reframing the issues. *Critical Approaches to Discourse Analysis Across Disciplines*, 1(1), 74–94.
- Macnaghten, P., and Urry, J. (1998). *Contested Natures*. Thousand Oaks, CA: Sage.
- Madison, D. S. (1998). Performance, personal narrative, and the politics of possibility. In S. J. Dailey (Ed.), *The Future of Performance Studies: Visions and Revisions* (pp. 276–286). Washington, DC: National Communication Association.
- Mandel, R., and Noyes, E. (2012, January–February). Beyond the NWS: Inside the thriving private weather forecasting industry. *Weatherwise*. Retrieved from <http://www.weatherwise.org/Archives/Back%20Issues/2013/January-February%202013/beyond-nws-full.html>.
- Martin, J. (2004). Positive discourse analysis: Solidarity and change. *Revista Canaria de Estudios Ingleses*, 49, 179–200.
- Matheson, D. (2008). Critiquing the critical: A reflection on critical discourse analysis. *Communication Journal of New Zealand*, 9(1), 83–96.
- McKerrow, R. (1989). Critical rhetoric: Theory and praxis. *Communication Monographs* 56, 91–

- McKinley, A. (2008). Hope in a hopeless age: Environmentalism's crisis. *Environmentalist*, 28, 319-326. DOI: 10.1007/s10669-008-9169-1.
- McManus, J. (1992). Serving the public and serving the market: A conflict of interest? *Journal of Mass Media Ethics*, 7(4), 196-208.
- McQuail, D. (2010). *McQuail's Mass Communication Theory* (6th ed.). Thousand Oaks, CA: Sage.
- Mead, G. H. (1948). *Mind, Self, and Society*. Chicago: University of Chicago Press.
- Meisner, M. (2005). Knowing nature through the media: An examination of mainstream print and television representations of the non-human world. *Proceedings of the 7th biennial Conference on Communication and Environment (COCE)* (pp. 425-437). Sublimity, Oregon, July 19-22, 2003.
- Meister, M. (2001). Meteorology and the rhetoric of nature's cultural display. *Quarterly Journal of Speech*, 87(4), 415-428, DOI: 10.1080/00335630109384349.
- Merchant, C. (1980). *The Death of Nature: Women, Ecology, and the Scientific Revolution*. New York: HarperCollins.
- Mickleburgh, R. (1997, August 11). China Bureau: North Korea draws aid attention. *The Globe and Mail* (Canada), Monday, p. A8.
- Miller, C., et al. (2012, September 29). How people get news and information in different communities. Pew Research Internet Project. Retrieved from <http://www.pewinternet.org/2012/09/26/main-report-13>.
- Milstein, T. (2009). "Somethin' tells me it's all happening at the zoo": Discourse, power, and conservationism. *Environmental Communication*, 3(1), 25-48, DOI: 10.1080/17524030802674174.
- Milstein, T. (2009). Environmental communication theories. In S. Littlejohn and K. Foss (Eds.), *Encyclopedia of Communication Theory* (pp. 344-349). Thousand Oaks, CA: Sage.
- Milstein, T. (2011). Nature identification: The power of pointing and naming. *Environmental Communication*, 5(1), 3-24.

- Nelkin, D. (1995). *Selling Science: How the Press Covers Science and Technology*. New York: W. H. Freeman.
- Nester, T. (2009, May 8). Survival guru Q&A. *Outside Online*. Retrieved from <http://outside.away.com/outside/culture/survival-guru-050809.html>.
- O'Toole, R. (1998, January 4). Purity weakens greens. *Denver Post*, Sunday, 2nd edition, Perspective Section, p. G1.
- Opie, J., and Elliot, N. (1996). Tracking the elusive jeremiad: The rhetorical character of American environmental discourse. In J. G. Cantrill and C. L. Oravec (Eds.), *The Symbolic Earth: Discourse and our Creation of the Environment* (pp. 9-37). Lexington: University Press of Kentucky.
- Pace, S., et al. (1995). The global positioning system: Assessing national policies. Appendix B. Research Monograph. Rand Corporation. Retrieved from http://www.rand.org/pubs/monograph_reports/MR614.html.
- Pacey, A. (1983). *The Culture of Technology*. Cambridge, MA: MIT Press.
- Pacey, A. (1999). *Meaning in Technology*. Cambridge, MA: MIT Press. Retrieved from <http://site.ebrary.com/lib/uic/Doc?id=2001061&ppg=131>.
- Pergams, O. R. W., and Zaradic, P. A. (2008). Evidence for a fundamental and pervasive shift away from nature-based recreation. *Proceedings of the National Academy of Sciences of the USA*, 105(7), pp. 2295-2300.
- The personal news cycle: How Americans choose to get their news. (2014, March 17). Report, American Press Institute. Retrieved from <http://www.americanpressinstitute.org/publications/reports/survey-research/personal-news-cycle>.
- Phillips, D. (2013). Ecocriticism's hard problems (Its ironies, too). *American Literary History*, 25(2), 455-467.

- Philo, G. (2007). Can discourse analysis successfully explain the content of media and journalistic practice? *Journalism Studies*, 8(2), 175–196, DOI: 10.1080/14616700601148804.
- Pietrucha, B. (1998). Civilian GPS gets new signals. *Newsbytes.com*. Retrieved from LexisNexis.
- Pinder, D. (2013). Dis-locative arts: Mobile media and the politics of global positioning. *Continuum: Journal of Media & Cultural Studies*, 27(4), 523–541. DOI:10.1080/10304312.2013.803303.
- Powers, R. (1977). *The Newscasters*. New York: St. Martin's Press.
- Reisigl, M., and Wodak, R. (2009). The discourse-historical approach (DHA). In R. Wodak, and M. Meyer (Eds.), *Methods of Critical Discourse Analysis* (2nd ed., pp. 95–129). London: Sage.
- Rosenstiel, T., and Just, M. (2002). Five ways to better viewership: Simple and proven steps every station can take. *Local TV News Project*. Washington, DC: Project for Excellence in Journalism. Retrieved from <http://www.journalism.org/node/228>.
- Ross, A. (1991). *Strange Weather: Culture, Science, and Technology in the Age of Limits*. London: Verso.
- Rothenbuhler, E. (2003). Community and Pluralism in Wirth's "Consensus and Mass Communication. In Katz, E., et al. (Eds.) *Canonic Texts in Media Research* (pp. 106-120). Cambridge, UK: Polity.
- Too much fresh water: San Jose is trying hard to reduce discharge into bay, now it must try harder. (1997, September 2). *San Jose Mercury News* (California), Tuesday morning final edition, Editorial Section, p. 6B.
- Santander Molina, P. (2009). Critical analysis of discourse and of the media: Challenges and shortcomings. *Critical Discourse Studies*, 6(3), 185–198.

- Schon, D. A. (1993). Generative metaphor: A perspective on problem-setting in social policy. In A. Ortony (Ed.), *Metaphor and Thought* (2nd ed., pp. 137-163). Cambridge: Cambridge University Press.
- Science, service, society (SSS). (n.d.). American Meteorological Society. Retrieved from <http://www.ametsoc.org/sss/scienceservicesociety.html>.
- Shanahan, L., and McComas, K. A. (1999). Telling stories about global climate change: Measuring the impact of narratives on issue cycles. *Communication Research*, 26(1), 30-57.
- Sheppard, K. (2012, July). Charts: Which country feels the most guilty about the environment? *Mother Jones Magazine*. Retrieved from <http://www.motherjones.com/blue-marble/2012/07/american-consumers-ranked-least-sustainable>.
- Short, J. (2013, October). How much media? *Report on American Consumers*. Institute for Communication Technology Management (CTM). USC Marshall School of Business. Retrieved from <http://www.marshall.usc.edu/faculty/centers/ctm/research/how-much-media>.
- Smith, K. (1993). The influence of weather and climate on recreation and tourism. *Weather*, 48, 398-404.
- Stibbe, A. (2014). An ecolinguistic approach to critical discourse studies. *Critical Discourse Studies*, 11(1), 117-128. DOI: 10.1080/17405904.2013.845789.
- Sturken, M. (2001). Desiring the weather: El Niño, the media, and California identity. *Public Culture*, 13(2), 161-189.
- Sturken, M. (2006, June 11). Weather media and homeland security: Selling preparedness in a volatile world. Retrieved from <http://understandingkatrina.ssrc.org/Sturken>.
- Tankard, J. W., McCleneghan, J. S., Ganju, V., Bun Lee, E., Olkes, C., and DuBose, D. (1977). Nonverbal cues and television news. *Journal of Communication*, 27(4), 106-111. DOI: 10.1111/j.1460-2466.1977.tb01864.x.

- Tedeschi, B. (2008, October 9). Exactly where are you? New devices make the answer easier. *New York Times*, Final Edition, p. B10.
- Tenorio, E. H. (2011). Critical discourse analysis, An overview. *Nordic Journal of English Studies*, 10(1), 183–210.
- Ulman, H. L. (1996). "Thinking like a mountain": Persona, ethos, and judgment in American nature writing. In C. G. Herndl and S. C. Brown (Eds.), *Green Culture: Environment Rhetoric in Contemporary America* (pp. 46–81). Madison: University of Wisconsin Press.
- Urban, urbanized area, urban cluster, and rural population, 2010 and 2000: United States. 2010 U.S. Census. Census Bureau, U.S. Department of Commerce. Retrieved from <http://www.census.gov/geo/reference/ua/urban-rural-2010.html>.
- van Dijk, T. A. (1988). *News as Discourse*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- van Dijk, T. A. (2009). Critical discourse studies: A sociocognitive approach. In Wodak, R., and Meyer, M. (Eds.), *Methods of Critical Discourse Analysis* (pp. 70–94). London: Sage.
- Vannini, P., and McCreight, A. M. (2007). Technologies of the sky: A socio-semiotic and critical analysis of televised weather discourse. *Critical Discourse Studies*, 4(1), 49–73. DOI: 10.1080/17405900601149475.
- Volosinov, U. N. (1973). *Marxism and the Philosophy of Language*. New York: Seminar Press.
- Wada, E. (1997, February 8). Activists give consumers the “green” light. *The Daily Yomiuri*, p. 10.
- Wander, P. (1984). The third persona: An ideological turn in rhetorical theory. *Central States Speech Journal*, 35(4), 197–216.
- Where I’m Calling From – Global positioning systems help you find yourself. (1998, November 16). *Fortune*. Retrieved from LexisNexis.
- Wilson, E. O. (1984). *Biophilia*. Cambridge, MA: Harvard University Press
- Wodak, R., and Meyer, M. (Eds.). (2009). *Methods of Critical Discourse Analysis* (2nd ed.). London: Sage.

Woodyard, C. (2008, January 2). Navigation systems take a turn for better; GPS units add more info, including scores, weather, gas prices. *USA Today*, p. 1B.

World Wildlife Fund. (2012, October 17). Human demand outstrips nature's supply. *Living Planet Report*. Retrieved from http://wwf.panda.org/who_we_are/wwf_offices/singapore/?231057/the-living-planet-report-2014-reveals-alarming-increase-in-human-impact-on-the-planet.

Yu, R. (2008, July 8). GPS becomes a vital tool for frequent travelers. *USA Today*, p. 8B.