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DEMONSTRATING AND DEBATING CLIMATE CHANGE

The Function of Rhetoric from Science to the Public

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Introduction

Since climate influences our culture, it is not surprising that climate change has also become a part of the human world after decades of scientific, public, and political discourses from the second half of the twentieth century (Hulme 2016, 2021). Climate change has improved scientific knowledge, but it has also become a veritable cultural and social construct by integrating into our communications – into thinking, talking, discussing, writing, and imagining. Hence, it has also incorporated itself into language through new words and expressions such as climate crisis, climate emergency, climate strike, climate anxiety, climate refugees, global heating, climate hysteria, carbon market, carbon footprint, carbon diet, and many others (Koteyko 2015). Various “word of the year” assessments have reflected this development.

Climate change thus forms a major part of environmental communication that relays complex information from various scientific disciplines to the public. On the one hand, we use this kind of communication to convince and motivate people toward climate action. On the other hand, we also utilize it to persuade and debate with people holding opposing views. Hence, studying several aspects of climate change communication is an intriguing pursuit (Nerlich et al. 2010; Pearce et al. 2015). Climate change discourses and narratives have become important issues in the expanding field of climate change communication, in which rhetorical aspects have also been highlighted. Non-experts in rhetoric have conducted some rhetorical studies on climate change. These sorts of studies have melded with the general discursive or linguistic approaches. For that reason, this chapter presents rhetorical studies of climate change in dialogue with research on discourses and narration. It seeks to understand how we talk and write about climate change, how climate change discursively forms our perceived world, how we argue, and how we debate climate change using oral and written language ranging from scientific texts to public “climate talks”.

Linguistic Research on Climate Change

Rhetoric, narrative, and discourse are interconnected concepts that reflect the plasticity created by linguistic and cultural activity. According to Dryzek (1997/2013), climate change fits within different discourses like *survivalism* (i.e. climate catastrophe), *denial of limits* (i.e. climate scepticism), or *environmental problem solving* (e.g. mainstream climate policy). Detection of climate change discourses became a vibrant research topic at the turn of the millennium, particularly following the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC TAR) in 2001, as the topic increasingly penetrated public discourse. Evolving research focused on the various ways society encounters the emerging global mega-problem at the level of coping. These ways range from alarmism to denial and from techno-optimism action to the small steps toward possible change (Ernaut and Segnit 2006, 2007; Risbey 2008). Many researchers concentrated on the language of catastrophe and fear. This research direction flourished particularly after Al Gore's Nobel prize-winning documentary, *An Inconvenient Truth* (Johnson 2009; Morales 2017). The question of fear appeal remains an unresolved issue and is in continuous dispute; some consider it counterproductive, while others deem it necessary (Hulme 2008; O'Neill; Cole 2009; Tannenbaum et al. 2015; Chapman et al. 2017; Bouman et al. 2020; Kundzewicz et al. 2020; Lamb et al. 2020).

Discourses are thus the highest level at which we can study how people understand and represent what is happening, moreover, how people create a discursive reality embedded into the context of linguistic production and interpretation (Fløttum and Gjerstad 2017). Or, to be more nuanced, discourses are formed by those in power who can make their voices heard, be it politicians, media workers, celebrities, or scientists, who often represent the "elite" on a given case or issue. People in such positions can also be referred to as epistemic workers or communities (Castree 2014). Narratives somehow fit into the larger frame of discourses, but *frames* are also crucial to narratives because they guide the viewing and interpretation of a given case or event. Frames also arrange the participants and provide a possible way of "reading" the story. Frames have a strategic role in storytelling, in which narrative tone and style play parts. Narrative analysis is commonplace in media research, where the practice of journalists and other media communicators is studied (Wozniak et al. 2015; Fløttum and Gjerstad 2017).

While narrative or discourse analyses usually address complex text corpora in a longer time frame, a single person or a single text can be the subject of rhetorical analysis, as exemplified by Greta Thunberg's speeches (Evensen 2019; Vavilov 2019; Houdek and Phillips 2020; Michael 2021). However, academic research frequently confuses the notions of discourse, narrative and rhetoric (Hartmann 2010; Supran and Oreskes 2021) because these all refer to how we use *language* regarding climate change (Fløttum 2017; Fløttum and Gjerstad 2017).

The public meaning of rhetoric was misunderstood amidst the climate change debates. The recent focus on rhetoric and climate science was thus not always a purely academic question (Walsh 2017). Offline and online public discussions contrast the two concepts, i.e. rhetoric and science, and present them as opposites by treating rhetoric as either a non-scientific encounter of significant issues that promotes propaganda over fact-based arguments, or a form of demagoguery. Rhetoric is, admittedly, about persuasion, but it is not only applied by climate change sceptics. Rhetoric is inherently also a part of science (Gross 2006). Moreover, a traditional and – to some extent expected – form of rhetoric does permeate our talks and scientific texts. Nevertheless, employing the same old

rhetorical flourishes and commonplace phrases could also indicate a source of ironic self-criticism (Graham 1957). In the case of climate science, the role of rhetoric is much more obvious because of the need to combine facts with values to communicate uncertainty (e.g. climate change model predictions) and a call to engagement for and action on climate change (Walsh 2015, 2017). The related literature includes a remarkable attempt to grasp the rhetorical aspects of climate change communication. Yet in terms of rhetoric, this body of research focused mostly on sceptics, which provided some basis to confuse rhetoric and scepticism.

To address the linguistic and rhetorical aspects of climate denialism, some researchers returned to the roots of science studies and classical rhetorical traditions. The academic trends of science studies were initially concerned with the criticism of mainstream scientific discourse (Latour 2004; Ceccarelli 2011). For example, Besel (2011) applied the Latourian tradition of science and technology studies to examine the rhetorical climate debate and used the actor-network theory to enhance understanding of the role of rhetoric during these controversies. Addressing the climate change controversy, similarly, Jankó et al. (2014) also departed from the seminal science studies works of Latour (1987) and Gross (2006) by combining the science studies approach with the elements of basic Aristotelian rhetoric, applying the three genres of scientific speech: forensic, epideictic and deliberative. Addressing visual rhetoric of climate change, Walsh (2015) used Isocrates' aspects of rhetoric. These included: (1) employed strategies or heuristics achieving new forms of knowledge, (2) internal logical structure, (3) *kairos*, i.e. the temporal moment applicable for the rhetorical act, (4) audience of communication, (5) appeals to emotions, values, authorities, and sources of evidence, (6) style and presentation, (7) political effects on communities, and (8) positive or negative effects on democratic deliberation. Walsh also supplemented these classical aspects with semiotic and critical analysis of visual rhetoric. Bloomfield and Tillery (2019) focused on rhetorical strategies and rhetorical *topoi* of climate change sceptics, which is similar to Ceccarelli (2011), who involved all the antecedents of the Greek rhetorical tradition to reinforce her "supportive orientation" toward mainstream science. These examples – some detailed below – show the potential to employ rhetorical analysis to construct wiser, more considerate, and more useful climate change discourses – an insight Walsh (2017) underscored in his focus review of rhetoric in climate change debates. Here, Walsh (2017) also applied the classical rhetorical traditions and outlined a dualistic range of *sophistic* (with the emphasis on emotions and persuasion) and *rational* rhetoric (with balanced stress on logic and rationality) to contrast the discourses of mainstream climate change science and climate change sceptics.

Beyond scepticism, scientific attention on rhetoric has only recently focused on youth climate change movements, e.g. on Greta Thunberg's speeches and rhetoric. Evensen (2019) argued that the rhetoric of the #FridaysForFuture movement places too much emphasis on science as the necessary basis of our actions. According to Evensen, the movement should acknowledge the limits of science and equally rest on social scientists, philosophers and ethicists. Furthermore, it should emphasize social inequity problems. In her analysis, Michael (2021) focused on the persuasive role of rhetoric in youth climate movement messages, specifically those of Greta Thunberg, by referring back to the basic concepts of *logos* (logical argument), *ethos* (speaker credibility) and *pathos* (emotional argument) within classical rhetoric. She argued that Thunberg's use of rhetoric successfully combines ecocriticism with eco-activism.

Linguistic perspectives also point to the direction of words and metaphors, indicating that even small elements of language serve as building blocks in our argumentation and

persuasion communications, i.e. in accommodating science (Nerlich et al. 2010). Forgách and Pléh (2022) have recently argued that proper metaphors must describe the enormity of climate change and imply human responsibility but must also stress opportunities to intervene and solve the problem without confusing interpretations and creating a mood of despair. Some examples of these sorts of metaphors include hothouse instead of greenhouse, climate breakdown or climate catastrophe, climate destruction instead of climate change, or global overheating instead of global warming. This approach is comparable to Cohen's (2010) earlier suggestion concerning the lessons of using warfare metaphors during World War II.

Research on Climate Change Science Debates

The historical roots of present anthropogenic climate change debates were also studied from the viewpoint of linguistic research (Hamblyn 2009; Liverman 2009; Sörlin 2009). Hamblyn (2009) argued that recent discourses echoed many real or perceived phrases, metaphors, and quotations from climate change icons like Arrhenius, Callendar, Keeling, or Hansen. With the appearance of climate change sceptics at the turn of the millennium, it became evident that scientific rhetoric would assume a central role. Communication scholars responded by increasing their study of scientific rhetoric. The first focus of this chapter is to review the related research. The language employed in speeches and texts in debates ranging from the “Chapter 8” controversy to “Climategate” can distinguish mainstream climate science from the climate sceptic community. Both above-mentioned debates were about scientific arguments for publicity and various background occurrences, how a climate change argument about human responsibility is worded, how background email consultations frame published scientific results and their readings (Edwards and Schneider 2001; Ryghaug and Skjølsvold 2010; Grundmann 2013).

“Climategate” – the scandal involving over a thousand partly sensitive emails hacked from a university server – was a part of the so-called “hockey stick controversy”. This controversy broke at the end of the 1990s when paleoclimate researcher Michael Mann and colleagues published their first temperature reconstructions for earlier centuries. These reconstructions were later extended to cover a span of a thousand years. Mann's study and subsequent follow-up studies became the canon of paleoclimate research and became signposts to the central argument of the IPCC, which claims unprecedented warming from the 1990s to the present, with human activity playing a major role in this temperature shift. It is not coincidental that the issue fell into the crosshairs of climate sceptic investigations. The controversy unfolded in the media, but several scientific publications also contributed to the dispute.

Unsurprisingly, the controversy drew the interest of science studies practitioners. Among the first was Besel (2011), who analysed the two Committee on Energy and Commerce hearings in 2006; the hearings investigated the debate on Mann et al.'s initial study from 1998 by summoning numerous scientists. Besel interpreted these events as “trials of rhetorical strength” where not only the scientific material was important, but also the rhetorical positioning surrounding it. Furthermore, Besel demonstrated that the controversy served as an example of how climate scientists and sceptics mobilized competing actor-networks to rhetorically defend or attack the important mainstream research signposts. Namely, Besel showed how climate change sceptics organized a network of denial with the same rhetorical features to attack Mann and how global warming believers defended Mann et al.'s study as a crucial node in its network. “By

rhetorically invoking other nodes in the network to support the single node that was attacked, global warming believers were able to use the weight of the entire network as a potent intentional resource” (Besel 2011: 132). This study also demonstrated that actor-network theory offers a deeper insight into scientific controversies where authors, texts, contexts and rhetoric could be analysed in their complexity.

Another example is Ceccarelli (2011), who, in “manufactured controversies” such as global warming, focused on the rhetorical strategies and tools contrarians use to delay and hinder policy action. By criticizing the balancing norm in American media and institutional practice, Ceccarelli outlined how climate sceptic politicians and various experts manufactured controversy and employed the uncertainty of scientific results as a tool.

Based on a scientometric comparison, Jankó et al. (2014) focused on the rhetorical practices of mainstream and contrarian scientists using the assessment of the IPCC Working Group I on the Physical Science Basis and an opposing, partisan climate change sceptic report published by the Heartland Institute, which is a conservative think tank. Using similarly cited references, Jankó et al. revealed the varying rhetorical styles of the opposing report editors and authors, i.e. reviewers. Jankó et al. started with Latour’s (1987) seminal work, *Science in Action*, which offers an approach to literature analysis, and with Gross’s guidance on Aristotelian rhetoric that “a report is forensic because it reconstructs past science in a way most likely to support its claims; it is deliberative because it intends to direct future research; it is epideictic because it is a celebration of appropriate methods” (Gross, 2006: 25). Hence, Jankó et al. demonstrated that forensic language was the dominant rhetoric in the mainstream IPCC report as it generally contained overall statements with grouped citations, in many cases with comments (or as Latour says: *modalities*). Conversely, the contrarian report used epideictic rhetoric by explaining the work of the cited scientists in detail and celebrating the scientists by highlighting their field research and their efforts during the observations, which played on the implicit opposition of climate modellers and field scientists. However, Jankó et al. argued that both reviewing methods aim at credibility. The narrated verbatim quotations with conclusions in the sceptic report render the text more believable, whereas the IPCC report editors synthesized the literature using grouped citations. This technique places the reviewers in the foreground with the text, thereby increasing their credibility.

Through deeper rhetorical investigation, Jankó et al. (2014) identified two cases. The “battle of key references” refers to a situation when “key authors” and their papers are referenced in both assessments, and they line up for a predetermined battle: the IPCC report used the key references of the sceptical report to demonstrate uncertainties, while the contrarian report criticized the results or methods of the IPCC’s key authors using their key authors. The vocabulary of the report authors was quite similar. When citing a friendly author, they apply the verbs “find”, “indicate”, “report”, “show”, “conclude”, but use the verbs “claims”, “contends” and “challenges” to present counter-opinions when citing opposing authors. Clauses starting with *however*, *although* or *nevertheless* were crucial on both sides. These words were applied to diminish the main sentence with a negative modality or dissolve uncertainty. These involved cases in which two reports offered disparate interpretations of a study result or when two studies obtained two disparate facts from the same reference.

Summing up, the above-mentioned study showed how authors mobilize other authors in the form of citations and references and use these as rhetorical tools to back their arguments or to criticize and demolish opposing findings. We could detect that citations do indeed form actor-networks, just as Besel (2011) had suggested. Medimorec and

Pennycook (2015) endorsed and supplemented the study results via a text analyser that proved that IPCC editors applied language that was far more cautious and conservative.

Concerning climate change science, article abstracts have come into focus in connection with the so-called “consensus debates”, the second focus of this chapter. Departing from the study of Oreskes (2004), climate change consensus debates heated up after the publication of Cook et al. (2013), when consensus figures, i.e. what proportion of scientists support the anthropogenic course of global warming, became key tools in climate change communication to the public. Without detailing the controversy of whether consensus messaging is a useful tool in persuading uninformed or unengaged people (Pearce et al. 2017; Russil 2018), the simple abstract rating method of Cook et al. shed light on the abstract writing habits of researchers. Cook et al. categorized more than 10,000 article abstracts according to the position authors took regarding anthropogenic global warming. The study established three basic categories: (1) abstracts that explicitly or implicitly endorse anthropogenic climate change by stating or implying that humans are causing global warming or that refer to anthropogenic climate change as a known fact, (2) no position abstracts, and (3) abstracts that explicitly or implicitly reject the anthropogenic origins of climate change. A large proportion (66%) of the “no position” abstracts concentrated on how authors rhetorically relate to the paradigmatic idea of anthropogenic global warming. Based on quantitative textual analysis, Jankó et al. (2020) argued that most pro-consensus or pure scientists (Fahnestock 1986; Hyland 2006; Pielke 2007) indicated no need or intention to refer to the human origin of climate change. The abstract rating is, thus, rather about rhetoric. Hence, “no position” abstracts and the related articles left more room for rhetorical manoeuvring in the hands of those who review and reinterpret the abstracts and related articles.

Science Goes to the Media

A 1986 German *Spiegel* cover depicting Cologne Cathedral flooded by the sea serves as a symbol of climate change, both as a media topic and as a phenomenon with powerful visual potential. Today, climate change communication is increasingly present in the online space, where blogs became the initial explicit discussion and debate forums before the rise of social media platforms, which frequently serve as little more than “echo chambers” that repeatedly rearrange our communication from scientific to public discourses. This development led to the *democratization* of knowledge-making and access (but also to *fragmentation*, seeing the newest trends in anti-scientific movements). It also opened up the possibility of the *contextual model* in public understanding of science with interaction and dialogues. However, science communication has remained anchored in the *deficit model* of promoting one-way communication to educate and inform the public. Moreover, these trends also accelerated the linguistic progress of the formation and diffusion of new word compositions regarding climate change (Koteyko 2015; Pearce et al. 2015). The colourful and rapidly changing media landscape provided climate communication with broad and expanding research attention where the importance of visual imagery (here, as rhetoric) is also notable. Hence, we briefly review these areas below.

News Media

Scientific discourses would not reach the public without the media, which places the burden of responsibility on the news media. Balance as a journalistic norm in climate

change controversy is a crucial issue (Moser 2010). Consequently, news media strongly affects public perception by filtering and determining the quality and quantity of information reaching the public (Boykoff and Rajan 2007). It can also stimulate or hinder engagement and policy responses (Russil 2008).

Beyond the debates, rhetoric and framing of the news and the linked visuals should be chosen based on scientific knowledge regarding environmental psychology, risks, and climate communication rather than on uninformative clickbait aspects. However, scientific literature is ambiguous in many aspects of effective communication. News story narratives and frames can address climate change causes, impacts and solutions/actions and awaken various emotions. Whether these emotions help to engage people and motivate them to individual actions or whether they hinder action through apathy or calm optimism is a matter of debate (Rebich 2011; Chadwick 2015; Feldman and Hart 2016). Research on the interaction of text and visuals in the news has also brought various results. For example, images that echo the story may produce greater salience and memorability; in other cases, they appear to have a limited effect on emotions (Geise 2015; Feldman and Hart 2016). What is crucial, independent of visuals and textual framing, is the selecting of key story aspects and making these more salient to the detriment of the others (Entman 1993), which has a profound influence on public judgement and opinion about the “climate story”. Frames focus on scientific uncertainties and the cost of mitigation policy that turn people against climate action, especially during and after an economic crisis (Morton et al. 2011; Boykoff and Boykoff 2007). In contrast, emphasizing long-term economic gains of mitigation and the threats of inaction, even in the present, leads to support. However, people tend to underestimate the dangers as long as the risks are framed as geographically distant issues that remain abstract and do not appear to affect daily life (Rabinovich and Morton 2012).

Social Media Platforms

Explicit debates around anthropogenic climate change and the key questions highlighted by the sceptics remained limited in traditional scientific forums. Hence, internet platforms, such as science blogs – which experts in the field often maintain – assumed the role of “extended peer communities”, i.e. direct access to firsthand scientific information and interpretations. Some of these platforms provided a virtual unfolding of science-in-the-making. Together with climate blogs representing the mainstream views (RealClimate) or directly criticizing the denial views (ScepticalScience, DeSmogBlog), the number of climate sceptic or critical blogs also grew rapidly. Some garnered global reach (Watts Up With That, Bishop Hill, Climate Etc., Climate Audit, JoNova etc.), especially after Climategate, which marked their peak (Nerlich 2010; Sharman 2014). Both groups of blogs are similarly active with the same working mechanism of posting mainly scientific article reviews complete with comment sections.

Nerlich (2010) identified particular religious metaphors as “effective framing devices” circulating in the sceptical blogosphere. These metaphors depicted mainstream science as a religion replete with believers, dogmas, prophets, zealots, etc. Moving beyond Climategate, researchers explored how the opposing blogs contributed to the polarization of online public discourses (Elgesen et al. 2015; van Eck et al. 2019).

While framed news stories are mediated in one manner exclusively – from the journalists to the audience – social media, including the previously mentioned blogs, provides a broad platform in which to react, comment, share and debate issues. A novelty

is the arena where mixed-attitude communities of sceptics and activists exist and share views; however, these debates are often exhausted in the employment of negative remark exchanges rather than the employment of sophisticated argumentation (Williams et al. 2015). As previously noted, polarization has also increased. Like-minded people have significantly more conversations with each other, which entails fewer mixed communities than like-minded communities (Williams et al. 2015). This fact hinders argumentation, confirmation and refutation, making climate change rhetoric unilateral. Practically, social media provides “echo chambers” or “information bubbles” to climate change deniers in which the community validates and reinforces climate denier views and keeps original sources of scientific information well hidden (Matthews 2015; Walter et al. 2018; Boomfield and Tillery 2019).

Despite the rise of sceptics, new media forms possess advantages in climate change discourses. Issues in which people can share their opinions and experiences tend to become more personalized and concrete, which proved hard to achieve through news media (Anderson 2017). As Walsh (2015) pointed out, instead of conventional rhetoric of climate communication, this topic needs to be involved in people’s daily lives, values and decisions. This personalized and concrete “social media rhetoric” could include a “friend’s” online travelogue of the melting glaciers posted on Facebook, or even a dialogue about the increasingly common weather anomalies in everyday life. One comment may be enough to associate weather events with climate change; thus, the entire group of participants in the conversation are likely to believe in climate change and perceive the increased risk (Borick and Rabe 2014; Leiserowitz et al. 2013).

In addition to “friends”, social media also brims with influencers, who reach their followers easily and instantly via pictures, videos, podcasts or textual posts. Social media influencers profoundly affect attitudes, behaviour and decisions (Casaló et al. 2020), which they reach with many rhetorical tactics, like attention-attracting, claiming expertise, meaningfulness and mood affecting (Zhou et al. 2021; Okuah et al. 2019). Thus, influencers play a new, third party role in climate communication. Good examples are green women influencers who effectively promote sustainable, zero-waste lifestyles, thereby helping people tackle climate change at the individual level (Yıldırım 2021). This is the rhetoric of “hero-story”, where the green heroes save the world with ordinary actions, implying that anyone can be a hero.

Visual Rhetoric of Climate Change

Visuals like pictures and diagrams can also serve as persuasive rhetorical tools and assume an impressive role in climate communication. Images hold a specific point of view and provide reasons for holding the view, just as textual arguments do (Walsh 2015). Even a complex argument becomes easily comprehensible to laypeople via imagery (Hannigan 2006), which facilitates climate communication. Images may be independent or connected to a text, in which case the image should mirror the rhetoric. Namely, figures in scientific articles show objective information that avoids emotional evocation; however, graphs about climate change-induced rainforest loss or rising mortality rates may stir sadness, anger or anxiety in people just as the famous “hockey stick” inspired many debates and scandals. Images with a wider cultural meaning provoke stronger emotional responses and facilitate lines of identification with visual subjects (Smith and Joffe 2009). It is easier to identify personally with a “climate refugee” who lost everything to a bushfire than it is to identify personally with a graph depicting rising temperatures. Moreover, if people

adopt the perspective that these events are near rather than far – that climate change could bring similar catastrophes to their doorstep – they might become more motivated to take action. Although imagery is a key tool in shaping people's conceptualization of climate change (Leiserowitz 2006), imagery reflecting climate change disasters in distant places can instil a false sense of security that such events could not happen closer to home (Moser 2010; Spence et al. 2012). The challenging role of visual rhetoric is bridging this psychological distancing from climate change and its consequences.

Visual rhetoric, especially photographic imagery, can connotatively argue the need for action from different perspectives. The first one is “climate change causes”, which include pictures of fossil fuel plants and deforestation. These images tend to lay the blame for climate change on people. This approach rarely moves people to action, as people blame others rather than themselves (Hamilton and Kasser 2009). This form of visual rhetoric fails to address many other psychological barriers, such as limited cognition, ideologies, social norms and perceived risk (Gifford et al. 2011). The second starting point of arguing climate change with visuals is “solution”, which includes things like solar panels. The “solution” approach is also a double-edged sword because it presents climate change as easily solvable. On one hand, it gives people hope, but on the other hand, it also reduces the significance of the issue (O'Neill and Nicholson-Cole 2009; O'Neill et al. 2013; Metag et al. 2016). Its efficacy is controversial in the literature. On the one hand, Carlson et al. (2020) found that solution visuals grab attention better than negative imagery. On the other hand, Chapman et al. (2016) noted that among the three types of rhetoric, “impact” visuals grab the most attention and provide the greatest motivation for people to alter personal behaviour and support climate change policy.

However, the third and the most common approach, which shows the “climate change impact”, also exhibits a debatable effect on emotions and motivation. This category includes CO₂ level graphs, maps depicting average temperature change in the recent decades, and suffused iconic pictures like underweight polar bears and melting ice sheets. These catastrophic, fear-inducing and dramatic visuals emphasize the reality of climate change as a real problem. They also create a sense of urgency by calling for immediate action in the face of dire consequences that destroy wildlife and humanity. This approach can be categorized as a form of persuasive reasoning because it grabs attention and emphasizes the importance of combating climate change. However, it also tends to overwhelm people and triggers hopelessness rather than positive motivation, which often leads to psychological and geographical distancing (O'Neill 2013; O'Neill et al. 2013; O'Neill and Nicholson-Cole 2009).

According to some studies, many of the image types that climate change advocates, journalists and non-governmental organizations regard as effective visuals usually fall short of expectations in communication. For instance, “climate clichés” are not only often overused, but the sadness and empathy the clichés attempt to evoke seem forced (Hulme 2009). Furthermore, people often associate images of droughts and deforestation with social issues like third world poverty rather than with climate change (Chapman et al. 2016). Instead, the most convincing images are of individuals or people who are not politicians or environmental activists (Nicholson-Cole 2005; Braasch 2013; Chapman et al. 2016). Moreover, images are more engaging if direct eye contact between the image subject and the viewer is established (Banse 2013; Chapman et al. 2016). The other decisive factor that determines the effectiveness of a visual is “localization”, through which local or national problems are more relatable than melting glaciers or destroyed rainforests in

distant places (Nicholson-Cole 2005). Distance visuals tempt people to believe that climate change is a remote problem from which they can remain detached and from which they will suffer no consequences (Manzo 2010). However, other studies have yielded contrasting results (O'Neill and Hulme 2009) or mixed findings (McDonald et al. 2015; Chapman et al. 2016). Depicting climate change as a global problem that affects different localities in various ways remains the duty of scientists and photographers alike.

Conclusion

Climate change is a powerful concept that is fundamentally reshaping all aspects of our physical and cultural world, from economy to politics and from science to arts. Our language follows these trends. Environmental communication, particularly climate change communication, deserves our attention. This chapter provided an overview of the research terrain of climate change discourses, narratives and rhetoric that mirrored the central questions in climate change communication concerning our language. It also addressed how we can create different worlds of understanding discursively or linguistically. We demonstrated that related research examined the deepest elements of rhetoric concerning the controversy between mainstream and opposing groups. The review of the media landscape further nuanced and coloured this reality. Rhetoric is an important tool for communicating engagement and action in climate change debates and beyond; however, the most effective or ineffective means of communication are still under debate. When examining communication, we may see the merits, opportunities, and difficulties present in the field. We must also note that communication alone cannot provide a universal cure for managing, let alone solving, climate change.

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