The Logic of Imitation and the Reconfiguration of News in Climate Communication on TikTok

by

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Abstract

This thesis is a qualitative multimodal analysis of TikTok videos and interviews with eco-influencers that maps the actors and content present across three climate event case studies: the 2021 Pacific Northwest Heat Dome, the "Soupgate" protest, and the passing of the U.S. Inflation Reduction Act. These case studies each tell a unique story: of continued climate disconnection perpetuated by a platform vernacular that restricts some climate communication but elevates others; of the decontextualization of news content to fit into this vernacular; and, finally, of the work that a rising cast of influencers is doing to work around the affordances but within the vernacular of TikTok to engage in effective environmental education and news reporting. I assert that a logic of imitation constitutes an information ecology that is not well suited to the effective mediation of climate crisis on TikTok.

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Chapter 1.   Introduction

Just two years after its launch, TikTok became the most trafficked site in the world (Tomé & Cardita, 2021) and has established itself as a hub for climate change content. In their own words:

> "At TikTok, we are committed to transforming climate anxiety into empowerment, helping our community and the next generation be informed and engaged." (*Taking #ClimateAction with Our Global Community on TikTok*, 2022)

From this language, one might think TikTok is itself producing content to remedy the climate anxiety it became known for perpetuating (Hautea et al., 2021; Drost, 2021). This is not the case, of course. TikTok presents itself as a platform, a term which invokes a discursive balancing act. Platforms claim to endow neutral territory for all content, thereby dodging questions of responsibility for harmful content; and they claim to be intermediaries, rather than taking an active role in content creation (Gillespie, 2010). TikTok is no different. If the company wants to retain its strategic and defensible position as a platform, then they are severely limited in the ways they can actively intervene in the climate change discourse happening on the network. They go on to say:

> "By providing access to credible climate information, elevating voices of climate advocates, experts and organizations dedicated to raising climate awareness and literacy along with collaborating with communities and partners who share the same vision around the world, we want to inspire hopeful dialogue and real action for a more sustainable future." (*Taking #ClimateAction with Our Global Community on TikTok*, 2022)

"Providing access," "elevating voices," and "collaborating with communities and partners" are masterfully unverifiable phrases, no doubt carefully crafted by the company's public relations and legal teams to give the impression that TikTok is doing something about climate change while surgically avoiding language that implies they are curating content, and would thus be legally responsible for the content on their platform.

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Much of this thesis interrogates TikTok's ability to live up to these claims by examining climate communication happening on the platform through case studies of three climate events: the 2021 Pacific Northwest Heat Dome, Just Stop Oil activists throwing soup at a Van Gogh painting, and the passing of the U.S. Inflation Reduction Act. Together, these case studies depict a cross section of three distinct climate communication discourses on TikTok: climate disaster, protest, and policy change. There is *a lot* of climate change content on TikTok, and this is not a comprehensive study of *all* climate communication on the site. Through these case studies we can understand the actors, content, and patterns within climate discourses on the platform. By mapping this terrain, the social media logics (van Dijck & Poell, 2013) of TikTok and their attenuating effects on the mediation of "good" environmental information become clear.

This thesis, like other works in the field, takes the position that climate crisis[1] is one of, if not, the most important issue the world faces today. The study of environmental communication is inherently "crisis-oriented," with researchers working under the same ethical directive to mitigate harms (Pezzullo & Cox, 2021, p. 37). Environmental communication can take many forms. It could be a public service announcement about choosing paper bags over plastic, exemplifying a purposeful, directed attempt to persuade an audience to prioritize the environment. It could also be a dinner table conversation about the merits of one politician's climate policies over another's, or a fiction film set in a climate dystopia, or an oil company reassuring the public that their products will not heat the atmosphere, despite knowing otherwise (Franta, 2018). Pezzullo and Cox (2021, p. 34) define environmental communication as "the pragmatic and constitutive modes of expression—the naming, shaping, orienting and negotiating—of our ecological relationships in the world, including those with nonhuman systems, elements, and species." Their definition is broad and inclusive of many forms of information transmission. Environmental communication does not imply a certain positionality. Just as an environmental activist negotiates their position as a defender of the environment, others may position themselves as simply not that concerned, or worse. In this project,

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[1] Throughout this work, I use "climate change," "climate crisis," and "global warming" interchangeably as blanket terms that refer to the human-caused warming of the planet and subsequent environmental tolls.

environmental communication spans the gamut—some TikTok users argue fervently against climate action, even calling sometimes it a 'government conspiracy', while others personally take extreme action to help the environment through smaller actions like taking shorter showers or going as far as to swear off flying. People watching and taking an active part in environmental communication on TikTok come from a variety of backgrounds with differing levels of science communication expertise. Most frequently, however, users find themselves simply existing as neutral, ambivalent actors within the discourse—making a meme about the planet dying for a moment of internet fame or broadcasting how they're dealing with extreme heat in their home. Environmental communication on TikTok is complex and often ambivalent (Hautea et al., 2021). It is also full of inaccuracies and bad advice. For example, users often conflate environmental issues like plastic pollution with climate change (Hautea et al., 2021). In this project, I am interested in assessing the health of the information ecosystem and its capacity to facilitate effective climate communication. All these examples of environmental communication are important to collect and analyze, as innocuous or impactful as they may seem. TikTok ends their press statement with their theory of environmental change:

> "We're all in this fight to preserve our planet and it's up to each of us to make our impact. Join the #ClimateAction campaign and share what you're doing on your part to combat the climate crisis. Whether you're brushing up on your climate literacy on TikTok, or striking up a conversation about easy sustainability ideas, we all have a part in protecting our planet's future and together, we can make a difference." (*Taking #ClimateAction with Our Global Community on TikTok*, 2022)

By now it is clear that TikTok puts the responsibility for environmental communication and change squarely on the user. Environmental progress is "up to each of us," and depends on increasing your own climate literacy. TikTok made this celebratory press statement to herald a week-long partnership with two "eco-creators" to livestream COP27, the most recent United Nations Climate Change Conference. The superfluousness of their action spotlights their purported lack of tools available to shape the content on the platform. This position is purely discursive. In theory, there is actually a lot they could do to increase both the amount and quality of good climate

communication on their site, but doing so would compromise their comfortable standing as a platform. In addition to mapping the ecology of climate communication on TikTok, this thesis is an examination of the power (or powerlessness) of a platform to shape its content through design, and a story of how climate communicators work around these affordances to post content that effectively communicates the severity of climate change and what viewers should do about it.

1.1. Thesis Outline

Chapters 1 and 2 introduce the research project and the relevant literature. The literature review first outlines research on visual and multimodal forms of environmental communication. I then identify research on TikTok, the influencer industry, and social media generally, and synthesize this small body of research with the more substantial amount of work on professional news organizations' use of social media. I end this section by elaborating on my framework for assessing the "ecological health" of the information ecosystem.

Chapter 3 lays out the data collection method, analysis methods, and ethical considerations. I generated a sample of TikTok videos (n=472) using a custom scraper tool which collected the videos and their associated metadata. To analyze the videos, I conducted a qualitative multimodal analysis, which is buttressed by interviews with TikTok eco-content creators (n=6) and with a basic quantitative analysis of the metadata. The qualitative analysis method is based on a novel framework that complicates notions of misinformation and other forms of bad content by considering content in relation to other content in the network and according to its amplification and circulation (Phillips & Milner, 2021). I end this chapter by discussing the ethics of social media research.

Chapters 4, 5 and 6 each spotlight one case study. I roughly structure each of these chapters by first introducing the case study, then detailing the original research findings, then analyzing these findings, then contextualizing the findings against existing research in the field.

Chapter 4 is a case study of videos posted during the disastrous 2021 Pacific Northwest Heat Dome. For the most part, this chapter takes a micro-level focus on the content of the videos, identifying visual motifs that reoccur and extracting common discursive trends to map the network of environmental communication. In this climate disaster media ecology, content generated by average users is predominant. News organizations represented a very small portion of the sample, and environmental advocacy organizations were completely missing. Average users transmitted their personal experiences with the Heat Dome using lighthearted rhetoric and creative visual metaphors. At the same time, I argue their humor and ambivalence need to be taken seriously. Professional environmental communicators could learn from the successes of average users. Still, across the board there is a troubling lack of connection to bigger systemic issues and politics. Even the term "climate change" was almost never mentioned, possibly because the architecture of TikTok reinforces offline social norms that already prevent people from bringing up climate change in everyday situations.

In Chapter 5, I study videos posted in response to members of the activist group Just Stop Oil throwing soup at a famous Van Gogh painting. This chapter steps back from the micro-level content analysis of the previous case study to explore how breaking climate news circulates on TikTok. Unlike in the Heat Dome case study, news organizations achieved high levels of engagement by posting and reposting the short clip of the protest, without important context. Lacking the necessary context—why the activists were there, what were their demands, and that the painting was undamaged— these clips were primed to be imitated and subverted by adversarial creators, leading to toxicity. I examine the structural reasons why news organizations are posting this "shortcut content" and how it could lead to harmful material effects for the activists and to the information ecology. I end by outlining the tactics TikTok currently employs to improve the site's information ecology, although none address the source of the issues that face news reporters and educators trying to engage in effective environmental communication.

In Chapter 6, I study videos posted during and after the US Congress passed its largest-ever spending bill to address climate change, the Inflation Reduction Act (IRA). This chapter zooms-out to view the infrastructure of TikTok from afar, identifying

misalignments between the types of content the network algorithmically and socially attracts and supports, the attributes of quality journalism, and the (wrongly) assumed utility of the network to generate traffic and revenue for legacy news organizations. This chapter looks more broadly at the influencer-ification of news reporting and less at environmental communication specifically. In this case study, influencers take the spotlight. A cast of independent citizen journalists have risen to create (mostly) quality content that strikes a balance between appearing authentic and personable, and reporting factual, appropriately contextualized news. Still, these creators and news organizations alike must work around the limiting affordances of TikTok to do their jobs well. I also provide a handful of fixes that TikTok could implement to marginally improve the health of climate protest, policy, and disaster ecologies on the site. These fixes do not address the root cause of the problem. By this chapter, it should be clear that the architecture of TikTok is fundamentally incompatible with many of the attributes of "good" environmental communication and the values of "good" news reporting. This architecture is what made TikTok a successful social media site and thus is unlikely to ever be changed, but small fixes may be better than nothing. I then conclude the thesis by summarizing my major contributions and by elaborating on areas for future research.

The three questions that guided this research project are:

What does the ecology of environmental communication on TikTok look and sound like, and how well does the ecology align with the scholarly understanding of "good" environmental communication strategies?

How are news organizations, advocacy organizations, and other professional climate communicators adapting to TikTok?

In what ways do the affordances of TikTok, like its recommendation algorithm, imitation features, and multimodality, shape environmental communication on the platform?

Chapter 2.　　Literature Review

The volume of environmental communication happening on TikTok is immeasurable. News organizations write stories of climate disasters and other newsworthy events on the usual drumbeat, which get reposted to social media where they are interpreted, rejected, accepted, or plainly ignored. TikTok communities, constituted by what the site's algorithm determines is a shared interest in strategies to reduce one's carbon footprint, or if nuclear energy is *really* green, or any other environmental discourse, continuously produce audiovisual content ad infinitum. There is no shortage of content about the environment, but publics around the world remain divided on environmental issues. Opinion polling reveals a third of the US population is *disengaged, doubtful,* or outright *dismissive* of global warming (Leiserowitz et al., 2021), and belief in climate change is moderated by political beliefs and action (Chan & Faria, 2022; Gregersen et al., 2020). Even those who are worried about climate change seldom take action against it (Whitmarsh et al., 2022). Europe fares better, but national governments remain ineffective at addressing the issues in the eyes of EU citizens (*Citizen Support for Climate Action 2023 Survey*, 2023). Unfortunately, *more* information about environmental issues does not translate to more action to address them (Owens, 2000 in Gunster, 2017). The sociocultural dynamics of climate change responses are anything but rational. Media coverage of extreme weather events, access to scientific information about climate change, and information-based advocacy have next to no effect on public concern about global warming (Brulle et al., 2012). Worry about climate change is strongly mediated by political orientation (Gregersen et al., 2020). People who are worried about climate change are unlikely to bring it up in conversation for fear of breaking social norms (Norgaard, 2011). Even if it were a trivial task to increase a population's belief in climate change, individuals concerned about climate change may still not take action because other issues take precedence, like the COVID-19 pandemic, or the individual's personal finances and employment status (Gunster, 2017). *More* information is not the solution—the information deficit model of climate change which assumes that a lack of knowledge is what prevents people from taking action against climate change is contested (Gunster, 2017; Suldovsky, 2017). *Better* information is not

necessarily the solution, either. The failure to adequately address climate change is fundamentally a sociocultural problem, and not a problem of information access. Studying the environmental communication happening on the internet can provide insights into this culture.

The way we communicate is becoming increasingly visual (Kress & van Leeuwen, 2001). Technological developments like the camera, photo printer, television, the internet, and so on, have facilitated this new dependence on visual media for communication. Social media sites have extended this new visual culture (Hand, 2016). Gibbs et al. argue that social media itself is undergoing a "visual turn" of its own, with sites turning sharply into images and video-first content (2015, p. 258), predicated on research that shows video content is more attention-grabbing and engaging (Y. Wang, 2020). Several image-based or image-only social networks have risen in popularity in the past decade, like Instagram, Vine, Snapchat, and TikTok. TikTok is the most video-forward of any of these social media sites, and its success has accelerated other sites' adoption of videos. Sites that were not originally built with video in mind, like Reddit and Facebook, have moved to make video sharing a core functionality of their sites (*Video Is Coming to Reddit!*, 2017; "Video on Facebook Keeps Getting Better," 2023). Instagram and YouTube have always been visual platforms, but have copied TikTok's imitation features and vertical video format for their own platforms. Audio is just as important as video on TikTok, and audio memes circulate at blistering speed (Abidin, 2020; Shane, 2022). Text is important on TikTok as well, often embedded in the videos themselves or written in the caption. The simultaneous engagement of these three modes of communication has resulted in a highly immersive, information-dense social networking site. Seeing the success of TikTok, other sites have rushed to implement shortform video platforms and to improve their algorithmic recommendation systems (Herrman, 2023). Communication is not only becoming increasingly visual, but also increasingly multimodal, meaning it tends to use many forms of communication in combination (Kress & Leeuwen, 2006).

Considering this multimodality, I have selected literature that seeks to understand the cultures, discourses, and aesthetics of environmental communication on the internet. Short of theorizing media as a means to influence a population's thinking, which risks

applying overly deterministic lens, studying the multimodal communication of climate change on the internet can 'check the temperature' of the digital culture. The digital culture of TikTok is distinct from the cultures of other social media networks, a reason why Pearce et al. (2020) advocates for cross-platform studies. The digital culture of TikTok is distinct from other platforms in hard-to-define ways. It skews younger Gen-Z users, for example (Newman et al., 2023). Although this is not a cross-platform study, it fulfills a dearth of research on TikTok, and I make an effort to contextualize this culture to the research on other platforms. From here, we can map areas of the internet that could be setting back the climate movement, or that are doing particularly well. This body of literature is small but growing.

2.1. Multimodal Communication of Climate Crisis

Images, and to a slightly lesser extent sound, have a rich scholarly history. Media have become a social currency in modern society, and their production, circulation and consumption create value for those in control of the process, initiating a feedback loop that further commodifies culture (Adorno & Horkheimer, 1947). Semiologists and theorists of visual culture like Roland Barthes, Stuart Hall and Susan Sontag have focused on the indexical 'truthiness' of photographs, video, sound recordings and other concrete representations of reality. Barthes put into words the 'piercing' emotional power of photographs (1981) laying the groundwork for further study of *affect* in the social sciences (Clough & Halley, 2007). Sontag argues the capturing of images is an extractive, colonial endeavor, and that the consumption of these images mediates peoples' understanding of reality (1977). Scrutinizing this mediation is important. As Gillian Rose argues, contemporary forms of understanding the world are predicated on an epistemological framework that "equates seeing with knowledge" (2001, p. 7). Despite the indexical nature of images, and no matter the author's delineation of its meaning, the interpretation of an image is in the decoder's hands (Hall, 1980). Indexicality is often illusionary, and truth is in the eyes of the beholder (Kress & Leeuwen, 2006)—indexicality is continually challenged with new visual technologies like computer-generated images and now, generative artificial intelligence (Ball et al., 2020). It is also challenging for the researcher to wade through the polysemous meanings of images while

maintaining objectivity and scholarly rigor (Kress and van Leeuwen, 2010). With the ceaseless proliferation of images and continued acceleration toward a "screen culture" (Robins, 1996), there have been repeated calls from within the field of environmental communication to focus research efforts on visual communication (DeLuca, 1999; Hansen & Machin, 2013). Following in the footsteps of these qualitative researchers, I reconcile the challenges of decoding this content by focusing on descriptive and denotative elements, and using this as a foundation to explore the polysemous elements that require more interpretation.

Most research into the visual communication of climate crisis is concerned with how the issue is represented in media (Schäfer, 2020a). Photographs and videos are the subjects of most studies, but a few projects have analyzed the presence of more abstract representations of climate change like weather maps and memes, or the increasingly multimodal forms of communication supported by sites like TikTok (Hautea et al., 2021). On TikTok, sound interacts with text which interacts with video. The boundaries of each form of communication fall further out of focus—a development that Jodi Dean terms the "second visuality" (2021). Still, studies that attend to the sounds and multimodality of contemporary social networking sites is scant—much more attention is paid to the visual. Contributing to this void is a goal for this project, because as Crystal Abidin points out, the "audio meme" is the basis for content production on TikTok (2020, p. 80). A second related body of literature tests what kinds of climate communication are effective. "Effective" does heavy lifting in these projects and in this thesis. The word can take on many different meanings. Generally, "effective" climate communication motivates people to change their behavior, to seek more information about climate change, or inspires a longer-term shift in their beliefs. It also de-emphasizes individualized action and promotes engagement with political and civic systems (Maniates, 2001).

2.1.1. Visualizing Climate Crisis

Photographs of climate change are dominant over abstract visualizations in newspapers (Rebich-Hespanha et al., 2014). As indices—direct representations of reality—photographs and videos of the environment are trusted sources of information

(O'Neill & Smith, 2014), although this indexicality can be misleading and is often challenged theoretically (Ball et al., 2020). Rebich-Hespanha et al. (2014) identified several dominant frames of climate change in the US news media. The most frequent frames were "government and politics", "science and the people who do it", and quantifications of "the bad stuff". According to the researchers, these frames indicate that climate change is both a political and scientific issue, and there is a perception among citizens that it is mostly out of their hands (p. 512). Images of climate change in the news have historically been negatively affective (DiFrancesco & Young, 2010; Nerlich & Jaspal, 2014), most often depicting the consequences of climate change rather than the causes. Extreme drought, impacts to wild biodiversity and flooding in urban areas are common scenes (Schäfer, 2020b; Smith & Joffe, 2009). Leiserowitz (2006) found that when asked about climate change, most Americans conjured images of melting ice—a distal, negatively-affective image that inspires little personal connection to the issue (O'Neill et al., 2013). These depictions in the news tend to be homogenous and occasionally fall into overplayed tropes like the frail polar bear, melting icebergs or towering smokestacks set against an orange sky (O'Neill, 2020). The consistent use of climate mascots informed audience perception of climate change as a far-off and far-away phenomenon (McDonald et al., 2015). O'Neill (2020) calls these mascots "climate synecdoches," objects and images inextricably connected to the issue to the point that they become cliche (see also: Grittman, 2014). News organizations have seen criticism for their use of these synecdoches, rather than reporting the tangible, human toll of climate crisis. News stories of deadly heatwaves are often published with images of people splashing in pools (O'Neill et al., 2023; Shaw, 2021). Recognizing this, The Guardian committed to publishing "fewer polar bears and more people" (Shields, 2019). The New York Times has experimented with multimodal news stories about the embodied experience of extreme heat (see Rubin et al., 2022). Climate communicators are dabbling in new media and new visualizations of climate change.

Television news meteorologists, who have been publicly visualizing climate for decades, are increasingly connecting the dots between extreme weather and climate change (Maibach et al., 2016), even as many face harassment for doing (Horton, 2022). News media rely heavily on scientific visualizations when conveying climate information

(Smith & Joffe, 2009; Wozniak et al., 2017). Sea level rise maps, long-term drought and wildfire prediction maps, and global average temperature predictions are visualizations of the climate crisis. Charts provide a quick method to visualize long-term trends, relying on individuals' analytic cognition to make sense of the data. The addition of a simple pie chart to an article about climate change can significantly increase public understanding of the issue (van der Linden et al., 2014), while more creative data-based artistic representations also show persuasive promise (Hahn & Berkers, 2021). Climate scientist Michael Mann's infamous "Hockey stick graph" which charted 1,000 years of Earth's average temperatures (Mann et al., 1998) is an early example of such visualization. The graph depicts a steady horizontal line of temperatures shooting sharply upwards. Later versions of the graph extended the timeline and applied a blue-to-red color gradient, intensifying its visual tension. Mann has said when he shows the graph to audiences, "I often hear an audible gasp," (Mann in Mooney, 2013). The effectiveness of this chart is often attributed to its depiction of the global temperature data. However, the visual qualities of the graph, like the contours of the temperature line and its dramatic coloring, are the affective elements. The hockey stick graph is a rare example of accessibility, attention direction and adherence to the gestalt in visual climate communication (Harold et al., 2016). Few others command the visual salience it exhibits, and as a result, fail to effectively get the message across among any audience except experts (Harold et al., 2016). One other successful and well-circulated example is Ed Hawkins' *Climate Stripes*, which depicts rising global mean temperatures in a striking blue-to-red spectrum (Metag, 2020). Charts and graphs are difficult to make affective. They appeal to our analytical processing, but climate-ambivalent people are particularly unmotivated by these visuals in comparison to more photorealistic media, whether captured in the real world or generated (Duan et al., 2021).

With increasing computing power and the development of more advanced visualization software (see Al-Kodmany, 1999; Herwig & Paar, 2002; Nocke et al., 2008; Pullar & Tidey, 2001), the ability to create images and animations has opened a new channel for the imagination of environmental issues and solutions (Sheppard, 2011). Using these tools, artists and scientists have visualized climate change through interactive media (Metag et al., 2020; Sheppard, 2011), like in virtual reality and interactive websites

and data visualizations. These visualizations may increase engagement, especially at the community level, but come with drawbacks. O'Neill and Smith (2014) worry that 3D visualizations often reflect overly certain visions of certain disastrous futures envisioned by their creators rather than imagining realistic or optimistic futures. Other visualizations may stray too far into dramatization and backfire among audiences, for instance showing Stonehenge surrounded by desert (Sheppard, 2011, p. 356). This type of visualization was once difficult to produce, but this changed with the advent of generative visual AIs like Midjourney. In my personal testing of visual AI models, ("stable diffusion models") prompts like "climate change" generate melodramatic images akin to the ones that dominate Google Images and that Sheppard (2011) warned were ineffective at getting the right message across. It is too early to know the impact of AI-generated climate change images, but it will certainly impact legacy news and social media information ecosystems.

In comparison to news organizations, less attention has been paid to how climate crisis is visualized on social media, despite the proliferation of visual and multimodal social networks like Instagram and TikTok (Metag, 2020). Visual tropes reside on social media as trends as a function of algorithmic recommendation systems that identify and magnify popular topics, or as an artifact of other sociotechnical processes (boyd, 2017). One study of user-generated environmental communications on TikTok found that young creators frequently demonstrated their helplessness or attributed the causes of climate change to older generations, often injecting humor and tinged with worry and anger (Hautea et al., 2021). A photograph of a manatee with "TRUMP" written on her back exploded on social media, particularly Twitter, only a few days after the January 6th attack (Jones et al., 2022). Ensuing discussions called out Trump supporters for their apparent wretched disregard for wildlife. An image of Earth from space overlayed with the text "There Is No Planet B" began trending across several social networks during the Paris Agreement talks (Pearce et al., 2018). Social media users posted the image to publicly signal their support for the Paris Climate Accords. Searching for "climate change" on Google returns anthropomorphized planet Earth's melting or on fire, before-and-after shots of cities devastated by fictional catastrophic floods and droughts, and other hyperreal imagery almost completely devoid of people (Pearce & De Gaetano,

2021). These images on Google are particularly sticky, having been sufficiently search-engine-optimized[2] (SEO) and are unyielding to more realistic or effective representations of climate change. Platforms resist intervening too much in its content to preserve the impression that they are a neutral ground for all content (Gillespie, 2010), but Google has changed its search ranking practices before when facing enough public or academic pressure (Lewis, 2023; Noble, 2018). These examples show how a site's architecture and affordances can influence its content. In the case of TikTok, social trends map onto the network's framework of imitative features. On Twitter/X, socially and politically sensitive topics spread at lightning speed, sometimes outpacing necessary ancillary information, like the fact that "TRUMP" was written in algae and not carved into the manatee. In the case of Google images results, the images with the best SEO rise above more effective climate crisis imagery.

2.1.2. "Effective" Environmental Communication

But what makes for "effective" climate imagery? One body of research tests audience responses to climate films (Bahk, 2010; Leiserowitz, 2004; Mellor, 2009; Silk et al., 2018). These research papers generally find that climate films increase the viewer's worry about climate change but do not stir them to act, and that the worry tapers off within a matter of weeks. Another set of research papers explore audience reactions to still images. Research from Climate Outreach found that audiences responded best to photos of people, of places that feel local to them, and that told new stories (Corner et al., 2015). Highly salient images like the polar bear and the smokestacks were quickly associated with climate change, but led to viewer fatigue (Corner et al., 2015). Less cliched images that told new stories, like people rebuilding after extreme weather, garnered more attention but were not as easily connected to climate change (Corner et al., 2015). This points to the importance of multimodal communication in contextualizing non-stereotypical images of climate change. Accompanying captions or audio could explain the image's context. In a similar project, O'Neill & Smith (2014) tested climate

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[2] "Search Engine Optimization" (SEO) is the practice of making internet sites visible to search engines through strategic use of language, tags, images, and other website features.

change images from newspapers for salience and efficacy (p. 81). They found that the types of climate change images that comprise mainstream discourses had varying effects, but that no images were able to increase both salience and efficacy at the same time. Like Corner et al. (2015), they found that images of climate impacts (i.e. flood zones and polar bears) increased salience but decreased efficacy. Both projects build upon earlier research that found fear-inducing images, while attention-grabbing, fail to move people to engage with the issue (O'Neill & Nicholson-Cole, 2009). In line with this research, Jaspal et al. (2014) caution that fatalistic representations of climate change in news media might cause people to deflect or ignore the issue because they feel there is nothing they can do—a fear that has pervaded discussions of climate change on TikTok for much of this decade (Hess, 2022). Visual representations of climate change also tend to play into the delusion that climate change is still a distal problem (McDonald et al., 2015; Wardekker & Lorenz, 2019). "Doomscrolling," "eco-anxiety" and "climate nihilism" have taken hold of those worried about climate crisis, especially young people (Hess, 2022). Environmental communication is indeed a "crisis discipline" (Cox, 2007), and the common embodiment of anxious feelings toward climate crisis can be taken as a sign that environmental communication is at least doing something, even if that something is just making people anxious. Pezzullo & Cox (2021) argue that the messaging about climate *crisis* must be balanced with climate *care*. Images of climate impacts and devastation are emotionally moving but must be coupled with "concrete behavioural 'action' for people to take," otherwise, the image may lead to a feeling of personal inefficacy (Corner et al., 2015). Images that depict apocalyptic futures can be especially ineffective because they make climate change seem both unstoppable and impossibly far-off (Corner et al., 2015; Doyle, 2022). As the above research shows, overcommunicating about crisis can backfire, making people feel like there is nothing that can be done to solve it.

Media that attends to climate solutions, rather than only problems, is one remedy. Some news organizations have engaged in "solutions journalism," which emphasizes the stories of actors working toward solutions (Curry & Hammonds, 2014). Solutions journalism has been shown to increase reader engagement (Dahmen et al., 2021) and ease negative feelings about the news (McIntyre, 2019). Members of the EcoTok Collective, a community of 21 social media (primarily TikTok) creators who produce content about

environment issues, take a similarly positive stance. EcoTok's goal is to "empower the younger generations to do something about [climate change] by teaching them about science, activism, and ways to make changes in their own life." (*EcoTok Collective*, n.d.). They set out to challenge "climate doomism", and to inspire a sense of hope among their viewers (Baker, 2020; *EcoTok Collective*, n.d.) through entertainment and education. The EcoTok Collective prioritizes solutionism and climate care. Set against a network backdrop of crisis content produced by news organizations and other actors, social media users on paper can consume a healthy media diet of both climate crisis and care content. However, we know from research into online filter bubbles (Pariser, 2011) and echo chambers (Jamieson & Cappella, 2008) that this is likely not how users experience the internet, and there is a risk of overcorrection into *too much* climate care content. While news articles that use a solutions journalism lens led readers to more favorable impressions of the issue, it does not impact their intent to take action (McIntyre, 2019). Overly positive images in news media may be construed as being staged or inauthentic (Corner et al., 2015). Effective climate communication requires balancing negative emotional content with positive motivational content, as well as giving people practice avenues to participate in political and civic action. Recounting the Six Americas framework, climate communicators need to move more people to feeling "concerned" or "alarmed" about climate crisis. Once there, they need to know there is something they can do about it.

2.1.3. The Mediation of Personal Experience

Long-term global warming, while conceptually abstract, manifests itself in more easily perceptible and often devastating extreme weather events. These events are uncharacteristic of typical weather patterns for a particular location and time of year (Howe et al., 2014). As extreme weather events become increasingly frequent due to anthropogenic climate change (Coumou & Rahmstorf, 2012) and previously untouched populations are interpellated (Ebi et al., 2021; Shukla et al., 2019), researchers have begun to test if individuals are themselves making the connection between extreme weather events and climate change. Extreme heat is especially persuasive. More Americans feel that they have personally experienced climate change than ever because

of extreme heat (Webber & Sanders, 2023). In most cases, weather anomalies were found to increase local belief in climate change.

Climate communication researchers have borrowed Construal Level Theory (CLT) from the field of psychology to describe this disparity between analytic and experiential processing (Trope & Liberman, 2010). Analytic processing of information relates first-person experiences to relevant statistical constructs (Marx et al., 2007). Marx et al. contrast analytic processing with experiential processing, which relies on affective emotional responses driven by experience (p. 48). CLT describes the linear function between the self and an object's psychological distance. The closer an object is perceived to be to the self, the more concretely it can be visualized (McDonald et al., 2015). More distal objects tend to be more difficult to visualize, requiring more abstract analytical processing. Climate change, occupying such an incomprehensibly massive time and space, remains psychologically distant in many peoples' minds (McDonald et al., 2015), potentially resulting in inaction.

Personally experiencing a climate change event is one of the most certain ways to convince a person to believe in and act against climate change (McDonald et al., 2015). Temperature abnormalities have been linked to climate change belief. Tracking temperature fluctuations across the US, Egan and Mullin (2012) found that for every 3.1 F rise above normal temperatures, "Americans become one percentage point more likely to agree that there is "solid evidence" that the earth is getting warmer,"—a similar effect that of race, age or education has on climate beliefs (pgs. 796-797). Unusually hot and cool weather leading to increased concern for global warming has been confirmed repeatedly (Brooks et al., 2014; Deryugina, 2013; Lang, 2014; Lyons et al., 2018; Sisco et al., 2017). The persuasiveness of temperature abnormalities is significant, even among people who distrust scientists (Krosnick et al., 2006, p. 26), and even accounting for political party and demographics (Akerlof et al., 2013). Experiencing a hurricane (Bergquist et al., 2019; Rudman et al., 2013), a flood (Albright & Crow, 2019) or wildfire (Hazlett & Mildenberger, 2020) has also been connected to increased belief in climate change. Fatalities and financial damages that result from such disasters have been shown to predict downstream attention to climate change (Sisco et al., 2017). Of course, trying to engage people around climate action during a climate disaster is one of the worst times

to do so (Marshall, 2015). It depends on the type and severity of the disaster, but victims justifiably have other things on their minds.

Hopefully, not everyone will have to experience the extremes of climate change before adequate corrective action is taken. Until then, the transmission and mediation of personal experiences with climate change is an important method to catalyze action. McDonald et al. (2015) describe the psychological distance of climate change by sorting existing research into categories: hypothetical distance (certainty), temporal distance (time), spatial distance (proximity), and social distance (relationship to affected peoples). Extreme weather events simultaneously close all four categories of psychological distance (Egan & Mullin, 2012; Hamilton & Stampone, 2013; Hazlett & Mildenberger, 2020; Myers et al., 2013). Activist campaigns may tailor their message to a single form of psychological distance. For instance, youth climate group Fridays for Future asserts that climate change is happening now, and future generations are at stake (*Gateway to the International Movement*, n.d.), thereby compressing the temporal psychological distance of climate change. US President Joe Biden declared climate change a "clear and present danger" (Liptak, 2022), with "clear" working to close the hypothetical distance and "present" working to close the temporal distance. Perhaps most important to this research, however, is social distance. The internet allows interpersonal relationships to be maintained instantaneously and globally, collapsing time and space (Baym, 2015). Climate change information can be mediated via institutional sources like governments and news, but learning about climate change through social media, and especially through interpersonal relationships, is related to an individual's feeling that they have personally experienced climate change (Rosenthal, 2022). An individual may become more concerned about climate change if they see their friends or family members discussing it online or sharing their personal experiences with climate change. The transmission of personal experiences of climate change is an important yet understudied area of environmental communication. These personal experiences are often posted to social media, making it a rich site to study how environmental discourses are unfolding. The mediation of extreme weather events, and significant news events more generally, can have a similarly strong effect on audiences. As I have shown above, there is a lot of

research that confirms the persuasiveness of personal experience, but there is comparably much less literature about the mediation of these events.

2.2. TikTok

Social media facilitates the development of "participatory cultures" in which users can easily share personal stories (Jenkins et al., 2015). TikTok is an intimate platform (Abidin, 2015). Despite its early emphasis on lip-sync videos as Musical.ly, TikTok became a platform for rapid information dissemination of all genres (Zeng, 2021). Videos on TikTok can begin trending within hours of being posted, even from accounts with very few followers. There is also an opportunity here for TikTok creators, whose microcelebrity status is often predicated on their approachability and performances of communicative intimacy with their followers (Abidin, 2015), to have an outsized impact convincing indifferent audiences to act against climate change.

TikTok's success has inspired several competing social networks. Meta introduced Reels in 2019, "copying" many of TikTok's features into their already-successful Instagram platform (Vincent, 2019). YouTube launched its Shorts platform in 2021 (Spangler, 2021). Functionally, YouTube Shorts and Instagram Reels are nearly indistinguishable from TikTok. All three have easy-to-use remixing features and encourage participation in trends. Content production is centered. All three platforms depend extensively on algorithmic recommendation systems. While this thesis studies TikTok, many of its findings, especially those related to social media logic (van Dijck and Poell, 2013), could be extended to Reels and Shorts.

Research specific to TikTok is sparse but growing. Much of the existing research is focused on public health, especially concerning COVID-19. Publications from the field of media studies make up a small fraction of the corpus and environmental communication TikTok papers can be counted on one hand. Many of these papers interrogate the site's famed and mystified algorithm. By comparison, little research has been done on the network's creation tools and production-consumption dynamics. This thesis contributes to this understudied area by paying attention to content, trends and

conversations happening on TikTok, and how different categories of users situate themselves within and alter the information ecology.

2.2.1. Paying (too much) attention to the algorithm

TikTok's explosion in popularity has been explained by some as having to do with filling a market gap after Vine went defunct (Santos, 2022), or due to its timely coincidence with the COVID-19 pandemic lockdowns (Kale, 2020), or most frequently, because of its excellent recommendation algorithm (Hern, 2022). The TikTok algorithm has attracted staggering levels of attention, described in media as being able to "read your mind" (B. Smith, 2021), "magical" (Joho, 2022), and "creepy" (Cummins, 2022). The algorithm appears mystical to users. TikTok users interact most frequently with its central recommendation algorithm, which queues content for the user on their highly personalized "For You feed" (FYf)[3] (Bhandari & Bimo, 2022; Klug et al., 2021) which has become rather infamous as a monolithic, controversial machine in the news media (see Dias et al., 2021; Little, 2021; Tiffany, 2022). At the most basic level, algorithms are input-output machines (Gillespie, 2014, p. 169) intended to function invisibly (Klug et al., 2021). Social media sites have employed algorithms for years (for instance, for recommending people to 'friend' someone or to display relevant advertisements). TikTok's advanced algorithm relies on natural language processing, computer vision technology, and machine learning to recommend content (Klug et al., 2021). TikTok users have tried to understand the mechanisms of the algorithm which relies on user input and attention, like a modern-day folk science (Kaye et al., 2022). Creators collaboratively develop strategies to appeal to the algorithm's mystified preferences, a practice that Sophie Bishop calls "algorithmic gossip" (2019, p. 2589). Attempts to understand, control and 'trick' social media algorithms are commonplace (Bishop, 2019; Bucher, 2017; Burrell et al., 2019). The algorithm is proprietary—a "black box" (Bucher, 2017)— so researchers and users can only speculate about how it functions. Bhandari and Bimo (2022) theorize that the architectural centering of the algorithm constitutes TikTok's

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[3] The For You Feed (FYF) is often called the For You Page (FYP) in other research and in common use on the platform. TikTok calls it the For You Feed.

unique form of sociality in which the primary form of interaction is through content production, rather than more ephemeral forms of interaction common on other platforms like commenting, liking or reposting. This research is important, no doubt; however, it is alluring to pay too much attention to the mystified algorithm at the risk of missing more mundane sociotechnical phenomena that are potentially more impactful. As this research will show, environmental discourses on TikTok are contoured by the algorithm to an extent. However, there is less studied social dynamic of production, consumption and imitation that may play a bigger role in shaping the content of the network, which is the focus of this thesis.

2.2.2. Creating Content

Researchers have pointed to design choices that guide users to interact with other users on the site by producing content for it (see Bhandari & Bimo, 2022; Duguay & Gold-Apel, 2023; Zulli & Zulli, 2022). The duet and stitch editing features allow users to add to or remix existing videos, which Zeng & Abidin have called "lip-sync activism" (Zeng & Abidin, 2021). Mimesis is encouraged through several design choices. Creators can append their own content to existing content using the "Stitch" and "Duet" editing features, which enables a sort of one-sided conversation to take place. TikTok, Instagram Reels and YouTube Shorts label the visual effects, filters and music that appear in videos so that they can be used again by inspired viewers. The algorithms parse trending effects, topics, music, and other elements, which are listed throughout the platforms so users can participate in the trend. Furthermore, because the video capture and editing process happens entirely in-app, no additional hardware or software required, nor online-offline production process. All users have access to the same tools, presets and filters. Whether you are on #BookTok or #BimboTok (Pierce, 2022), the filters, subtitles, camera effects and sounds are consistent. Contributing to the culture is easier on TikTok than it was on earlier video platforms like YouTube, which required the user to produce content outside the platform. This encourages a more active form of participation than we have seen on other social media sites in the past, extending the existing digital participatory culture (Jenkins et al., 2015), and constituting the highly affective, imitative online spaces of TikTok (Zulli & Zulli, 2022). I borrow the term "imitation" from Zulli & Zulli (2022) to

describe the mimetic features and artifacts of internet sociality on TikTok. "Imitation" could refer to the remixing of content and does not necessarily mean direct forms of imitation like lip-synching or dance choreography. The prevailing sociotechical expectation of imitation on TikTok asks more of content producers, who need to consume content, then build upon that content, rather than creating content that disregards the current trends and platform vernaculars, which Bruns (2008) refers to as "produsage".

Standardized production processes may accelerate the pace of internet trends and allow more audiences to participate. boyd argued that 4chan was the internet's first "meme factory" because of an architectural quirk (boyd, 2017, in Phillips & Milner, 2021, p. 56). Because of a lack of site storage space during 4chan's early days of operation, the site's administrators had to routinely delete old content. Users had to keep content they liked offline or risk it being wiped (boyd, 2017). Content was downloaded and reuploaded over and over, sometimes edited, and thus collected new meanings along the way. Although not intentional, this practice applied evolutionary pressure that contributed to the creation of early internet culture (Phillips & Milner, 2021). This evolutionary pressure is replicated on TikTok using the high sensitivity of the TikTok's recommendation algorithm and its emphasis on imitation. The algorithm arranges creators around trends, leaving less space for persona-driven content that is more textually stable over time (Abidin, 2020, p. 79). Like on 4chan, the imitative production-consumption-reproduction dynamic on TikTok has resulted in the network being an incubator for new cultural trends. The act of imitation itself then becomes characteristic of the aesthetic and visuality of communication on the platform (Dean, 2021, p. 369).

Having its digital roots in the popular activity of pretending one can sing like Beyonce or BTS (Jennings, 2018), imitation is at the core of the TikTok user experience. The architectural encouragement of mimetic content on TikTok contributes to what Zulli & Zulli (2022) call "imitation publics", a refashioning of the terms "networked publics," used to describe populations restructured by social network technologies (boyd, 2010), and "affective publics," describing affect-laden digital structures such as social media (Papacharissi, 2015). Imitation publics describe continuously evolving micro-genres wherein content-producing users imitate each other, iteratively introducing new memes and sparking new trends. Hautea et al. (2021) showed how environmental content

creators rode these "waves of cascading social connection" (p. 1) to get their messages across. Examples of good science communication, like a video that explained surface tension by showing how pepper floating in soap runs away when poked, may not go viral until another user applies an alternative interpretation. In this example, the female remixer "uses the pepper's response as a metaphor for how, in reality, she (the finger) repels boys in the world (pepper flakes) whenever she approaches them" (Zeng et al., 2020, p. 3230). Trends on TikTok are imitated, extended, exported to other networks, spilled over into other sites and into the physical world, then parlayed into the next trend. As political theorist Jodi Dean puts it, this type of imitation and circulation has ushered a new era of collective, networked visuality (2021).

2.2.3. Content Creators

TikTok and its influencers are inseparable in the zeitgeist. "Influencer" is a tricky categorization of online content creators who have reached a certain level of sustained microcelebrity status, and who center authenticity and interpersonal connections with their followers (Abidin, 2015; Bishop, 2021)[4]. Influencers build their fan bases from the ground-up on the internet. Some are loyal to a single platform, while others produce or repost content to multiple platforms. "Influencer" is denotatively commercial, referring to their use of paid partnerships to earn a precarious living (Glatt, 2022). "Content creator" is a blanket term for users less concerned with turning a profit from their online labor (Glatt, 2022), but are still distinguished from average users by their consistent content production and self-branding practices (Hearn, 2008) and their mastery of the platform's affordances (O'Meara, 2019). The EcoTok Collective, whose members I interviewed, does not mention "influencer" anywhere on their website, instead using terms like "environmental educators and activists". High-profile users whose videos were captured in the qualitative analysis samples seemed to prefer labels other than influencer as well. I use "content creator" and "influencer" mostly interchangeably.

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[4] See Bishop (2021) for an excellent breakdown of the politics behind the terms "influencer" and "content creator".

People use social media as a platform to participate in advocacy and political action (Cabrera et al., 2017; Zeng & Abidin, 2021). Online advocacy cannot replace in-person advocacy—attempts are often labeled "slacktivist" (Cabrera et al., 2017)—but it can augment it. Content creators are pressed to offer some other value besides ungrounded advocacy, whether that is in education, camaraderie, or humor. Along these lines, the EcoTok Collective is a group of 21 popular content creators who produce videos ranging from reducing personal plastic waste, to decolonial praxis, to breaking news, to hard climate science. Members operate their own TikTok pages, each with significant followings, and occasionally contribute videos to the EcoTok Collective account. Most of these creators are young adults with no formal training in science communication or journalism. However, just as they resist being labeled "influencers", they also resist being labeled "amateurs", as the literature on alternative media would call them (Atton, 2009). The quality of their content in terms of the standard measures of environmental communication efficacy outlined in the previous section is questionable. One study found that content EcoTok creators overwhelmingly framed environmental issues as a matter of individual responsibility (Huber et al., 2022), a neoliberal, ineffective and isolating theory of environmental change (Maniates, 2001). Social media, in general, has often been erroneously valorized as a force for social justice activism and democratization (van Dijck and Poell, 2013). While the efficacy of these usually untrained science communicators is unknown, the fact it is being discussed on the platform at all is progress, and EcoTok members regularly post videos that receive millions of plays.

There is also something positive to be said about getting information about climate crisis to an audience of TikTok users in their native tongue. Established content creators are attuned to the trends and speak the language. Social media users collaboratively produce shared "grammars of communication" (Pearce et al., 2018, p. 257)—the unofficial rhetorics, humour, and lingo of the platform (Bruns & Burgess, 2011), while the affordances and infrastructures of the platform bookend the types of content that can be made. This process is a continuous negotiation between the users and the platform, leading to the development of platform vernaculars (Gibbs et al., 2015). Content creators are fluent in the platform vernacular. This is not so true for news

organizations and other sources of institutional knowledge trying to gain traction on the site.

2.3. News on Social Media

Social media has emerged as a space for news. TikTok is one of the only social media sites that is increasing its share of online news consumption, and the site is now a primary source of news for young people (Newman et al., 2023). Journalists and social media platforms are often described as having a symbiotic relationship. Journalists follow the flow of breaking news on social media (Burgess & Baym, 2020) and use it as a tool to promote their content (Christin, 2020; Hermida, 2016). Being dependent on user-generated content, social media sites benefit from these high-profile news organizations drumming up engagement. "News" is not a distinct black-and-white category of content—rather, it is constructed from attributes such as the credibility of the author, the timeliness and importance of the topic, and the journalistic values and rigor employed (Edgerly and Vraga, 2020). However, the logics of social media platforms often clash with mass media and journalistic values, and this has reconfigured the contemporary news ecosystem toward one that rewards organizations that can publish the most clickable content (Christin, 2018; Petre, 2015; van Dijck & Poell, 2013). News organizations are feeling more pressure to create platform-native content (i.e. videos specifically for TikTok and nowhere else) (Poell et al., 2021). Some social media sites like Twitter have explicitly designed their platforms to encourage news content (van Dijck, 2011). The attitude of platform operators toward news content seems to be souring in recent years. TikTok does not appear to be actively courting news organizations to join its platform, but more and more news organizations are trying to adapt to the platform's unique affordances.

2.3.1. Legacy News Adapting to TikTok

Amidst the disruptions to news organizations' profit models spurred by the move to digital, news organizations have been experimenting with alternative funding sources and novel social media strategies (Lehtisaari et al., 2018). In the past two decades, news

organizations have had to adapt to constantly shifting digital platforms. The Reuters Digital News Report's "most striking finding" of 2023 was the "declining engagement with traditional networks such as Facebook and the rise of TikTok and a range of other video-led networks." (Newman et al., 2023 p. 10). Although TikTok has not surpassed Facebook, Twitter/X, or YouTube in the share of users who say they use the site for news, the gap is closing in much of the western world. Meanwhile, significantly fewer Gen Z internet users are accessing news on news websites than members of other generations (p. 12). Users are exposed to some amount of news even if they are not actively seeking it, whether through friends or through algorithmic recommendation systems. This incidental exposure to news is powerful, especially for young people (Fletcher & Nielsen, 2018). I'll note here a small issue with the phrasing of questions in the Reuters report, which consistently asks respondents 'which networks they use *for* news consumption'. TikTok users may not intentionally go to TikTok *for* news, but might be incidentally exposed to it while there. If this wording has any effect at all, it would be an undercounting of the already-impressive jump in news consumption market share on TikTok.

Legacy news organizations[5] have taken to social media to promote and publish stories with mixed results. Vázquez-Herrero et al. found that in 2020, many US news organizations had joined the network, but abandoned their accounts after posting a few videos (2020). Most of these news organizations reposted videos from other social media or from television broadcasts, which were often not formatted for TikTok (Vázquez-Herrero et al., 2020), clashing with the visual vernacular. Incorrect versioning—content that has been reposted from other sources without the appropriate adjustments—has always plagued legacy news organizations' online video content (Kalogeropoulos et al., 2016). As of 2022, about half of top news organizations had established presences on TikTok (Newman, 2022). There are a few organizations that stand out, like the Washington Post, which is closing in on 2 million followers as of Summer 2023. Key to the Washington Post success on TikTok is a small team of journalists who produce

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[5] "Legacy" news organization typically refers to established outlets that, at some point, had print publications. This is in contrast to "digital-native" or "digital-first" news organizations that have only ever existed online, like Huffington Post or Buzzfeed.

"short," "sketch-based" content that looks and feels like influencer content (Jorgenson in Meek, 2021). The Washington Post's content meshes with the platform vernacular well. However, as this research project will later explore, popularity on TikTok comes at a cost. The platform vernacular and design affordances preclude the direct translation of news stories to 'TikTok format'.

The values of journalism are not necessarily aligned with the values of social media. Journalists feel organizational and social pressures to write stories that will be popular on social media (Christin, 2018; Petre, 2015). This pressure can manifest in how stories are written (for instance, using splashier language or resorting to clickbait), as well as the type of stories that get coverage in the first place (Poell et al., 2021). Digital-born news organizations like NowThis and the Huffington Post are even more intertwined with social media and tend to operationalize the social media logic of popularity more effectively (Kalogeropoulos et al., 2016), at the potential cost of editorial trustworthiness and objectivity. Munger (2020) argues this has led to a decline in the importance of organizational reputation. Still, both legacy news organizations and digital-born news organizations retain a level of "platform-independence", as their primary revenue source is their websites, whether through digital advertising or subscription services (Poell et al., 2021). Theoretically, these news organizations would still exist if all social media sites disappeared overnight, and this is the result of a very conscious worry about becoming too dependent on platforms (Nielsen & Ganter, 2018). However, this independence may be challenged by the continued congealing of a platform vernacular that values persona-driven, platform-specific content. News organizations are now competing with citizen journalists, social media personalities and other amateur or semi-professional news reporters (Poell et al., 2021, p. 112). Meanwhile, the social media logic they have spent time and money adapting to over the past decade are once again changing.

2.3.2. Influencer Creep; Influencer Journalism

The most formidable of these competitors on TikTok, as this research will show, is a rising class of news and education influencers, like the members of EcoTok

Collective. Significantly more people who use TikTok for news are paying attention to "personalities" and "ordinary people" for their news instead of to mainstream sources, while the opposite is true of Twitter/X and Facebook (Newman et al., 2023, p. 13). A solidified platform vernacular demands that journalists create news content with the culture and lingo of TikTok in mind, which requires more labor and performativity than typical journalistic work (Poell et al., 2021). On TikTok, this could mean that journalists need to participate in and adapt their content to network trends. (Bishop, 2022) called this pressure to engage with social media platforms "influencer creep" (2022). Influencer creep is especially salient in industries with precarious labor situations and public-facing duties (Bishop, 2022). Small business owners and creative industry professionals feel the pressure to act like influencers to promote their businesses (Hund in Yohannes, 2023). The tenets of influencing, like performing authenticity, developing a self-brand, and engaging with audiences (Hearn, 2008), are being imposed on reluctant professionals, and news reporters are among the latest to face this pressure (Negreira-Rey et al., 2022), although they often times resist this pressure as much as they can (Christin, 2018).

At the same time, digital-native citizen journalists have been rising in popularity on TikTok (Lorenz, 2023). Independent citizen journalism has long been held as a democratic and activist practice (Atton, 2009). Citizen journalists on TikTok challenge some of the facets of typical citizen journalism. They are usually fluent in the vernacular, and sometimes refer to themselves as content creators or influencers, rather than journalists. Content creation is a precarious industry. Unlike news organizations which have for the most part retained their platform-independence and do not depend on platforms for income, TikTok's news content creators depend on ad revenue sharing systems and partnerships with brands. A very slim minority can make it their primary source of income (Silberling, 2022). Wealth inequalities exist in the influencer industry as well (Forman, 2021). Creators who deal with socially sensitive content like LGBT issues are more likely to be erroneously demonetized (Caplan & Gillespie, 2020), a form of "algorithmic discrimination" that disproportionately affects marginalized creators (Glatt, 2022). Recognizing this precarity, organizations like the American Influencer Council and F*** You, Pay Me have argued for the professionalization of the industry and the creation of an "influencer middle class" (Edwards, 2023). Legitimizing the

influencer industry could help isolate news content creators from becoming overly reliant on branded content which could affect their editorial independence.

2.4.   Mapping Social Media Landscapes

Communication researchers frequently talk of "mapping" spaces. The topography of the field needs to be explored before theory can be applied (Craig, 1999), p. 149). With TikTok being so new to the scene, there is vast terrain to explore. However, mapping is often a dispassionate endeavor under the directive that the researcher should not impart anything other than objective geography. Phillips and Milner (2021) take a more active and analytical approach in their use of cartographic metaphors to describe areas of "pollution" in media ecologies. "Ecology" here is notably different from "landscape". Ecology refers to the study of relations among life forms within an environment. Similarly, (Nardi & O'Day, 1999)'s concept "information ecologies" specifically draws attention away from the technologies and to the people who use them (1999). Communication theorists have long used this metaphor to visualize a landscape of interconnected communication technologies and discourses. Postman (1970) likened media technologies to environments in which cultures and discourses, like species, compete for attention. An "information ecology" is a system of people, technologies and information flows. Ecologies are naturally self-balancing. Disruptions to the equilibrium within an ecosystem, like the introduction of a new media technology (for instance, a new social media platform) lead to periods of instability, but the theory holds that the system naturally balances itself in time. Ecologies can be of different sizes and scales. Ecologies are constantly shifting and full of life, composed of individual actors who compete and cause unintended effects. A map of a "landscape", by comparison, is static and lifeless.

Identifying areas of "pollution" in a media system is more than an exercise in mapping. It requires active assessment of what types of information are bad for the environment, who is producing it, and why. Following Phillips and Milner's guidance, I do more than map the landscape of environmental discourses on TikTok by assessing the health of these ecologies. "Health," of course, is in the eyes of the beholder. Like the term "platform", "health" is a mushy term adopted by platform operators as a metaphor to

describe the desired outcomes of their governance efforts (Gibson et al., 2023). From TikTok's perspective, their ecology is healthy: they have created a self-sustaining system of users who create their own content, are highly engaged in others' content, and that generates loads of ad revenue. By "health", I'm specifically referring to the balance of actors who engage in communication about the environment, and the quality and reach of those communications. "Health" is often placed opposite of "toxicity", which platforms use to describe undesired and harmful content (Gibson et al., 2023). Acknowledging that both "health" and "toxicity" are the language of the platforms, I will carefully proceed using them in lieu of better terminology. The values and goals of TikTok as a company are not aligned with what a "healthy" information ecology would look like to a professional environmental communicator. Many of the suggestions that I will make throughout this thesis would likely impact the company's bottom line.

In this thesis, I chose three case studies to roughly represent the ecologies of climate protest, policy, and disaster. Together, they stand in as a proxy for climate change discourse ecology as a whole. The case studies are only microcosms, and not perfectly representative of all conversations happening the platform. Just as two adjacent forests will have unique ecologies—species imbalances, hydrological inequities, etc.—two adjacent information ecologies will have different actors and discourses. With this caveat noted, certain patterns will become evident across ecologies, and knowledge learned from one case study will be transferable to others. It is also important to note the limitations of a metaphor like these. Geographical and scientific metaphors are seductive when thinking through the infrastructures that underpin contemporary online systems (Seaver, 2022). However, these metaphors can be overextended. Increasingly personalized and algorithmized social media sites make it so no two users reside in the same media landscape. This "postgeographic" space is the new norm (in Seaver, 2022, p. 137). There is no universal map that can be navigated by the researcher. By producing a map of the climate communication happening with these three distinct case studies, I am capturing a picture (albeit, an incomplete one), of the content, actors, and narratives that TikTok users are seeing. This does not reflect the normal mode of media consumption on TikTok. The company, like others, goes to great lengths to prevent this type of access by researchers (Bruns, 2019).

2.4.1. Bad Content, Good Content, and Everything In-Between

It does feel fitting that a thesis on climate crisis uses an ecological metaphor to underpin its theory of information and methodological framework, and this is not purely coincidental. Ecologists and social scientists alike strive to understand the interconnectedness of the world, and how individual actors constitute the larger systems they belong to. The technologies that enable this interconnection are themselves neutral—social media is often blamed for our current climate of polarization, misinformation, and sociocultural misalignments—but they do allow bad content to travel quickly across networks (Phillips & Milner, 2021). "Bad" content can be explicitly harmful, for example, taking the form of distributed anti-LGBT posts by average social media users (Berg-Brousseau, 2022), or of coordinated and highly sophisticated disinformation campaigns by state actors (Lukito, 2020). Examples of climate denial and skepticism are rife on social media (Al-Rawi et al., 2021; Hickman et al., 2021). The threat of mis-, dis-, and mal-information has attracted much attention in the media. Responses by platform operators have been combative: implementing fact-checking initiatives, complex content moderation teams and tools, and implementing cutting edge detection technologies (Gillespie, 2022). These tactical responses do not address the root causes of a disintegrating information ecology (Gillespie, 2020; Marwick, 2018; Marwick & Lewis, 2017). Phillips and Milner (2021) argue that responses to the misinformation crisis have been neoliberal and individualized. A person falling for misinformation is due to their own lack of media literacy, not because of the platform or because of the actor perpetuating it. Platforms, of course, downplay their supposed neutrality to take principled stands against explicitly harmful content, while playing up their neutrality in situations that are less clear cut (Gillespie, 2010). The concept of misinformation constructs a vast gray area that gives platforms a lot of freedom in how they choose to handle or ignore bad information.

From the perspective of a researcher this presents a methodological challenge. To study the quality of environmental information being communicated on these platforms, the point of view must be changed. Phillips & Milner (2021) wrestle with this reality in *You Are Here*, which outlines a networked ecological understanding of internet

misinformation. From a networked, satellite-like perspective achieved by mapping a sample of videos, one can begin to see the 'landscape' of the network. "Polluted information," like air pollution, does not respect geographical borders. Its harms unfurl over long periods. Little bits of pollution emitted decades ago—a transphobic joke; a new racial slur coined; and so on—cultivated a media landscape in which radicalism now thrives. In the affective environments of algorithmic imitation platforms, the remixing and regurgitation of polluted information accelerates this positive-feedback loop. Phillips & Milner are concerned with the toxicity of content (2021, p. 5). Polluted information, as a concept, envisages the quality of information existing on a spectrum, rather than into homogenizing buckets of mis-, dis-, or malinformation. It provides the space to consider the less overtly harmful aspects of internet culture. One this study's earliest finding was the presence of mass amounts of bad eco-advice that would not normally meet the bar for "misinformation," and thus not worthy of fact-checking or being scrubbed from the site. This is not to say that the ideal form of information is entirely factual or is devoid of ideological orientation. Ideology is imbued in information and serves as a mechanism through which people "figure out" the world (Hall, 1984). Phillips and Milner are primarily concerned with the toxicity of online content, and some content is objectively free of toxicity, unlike ideology. Still, something needs to be done to improve the health of the ecology. Phillips & Milner's concept of 'polluted information' provides both the ecological, top-down perspective and the nuanced, analog quality-assessment framework necessary for the study of these platforms. Importantly, the 'polluted information' framework on its own is not a method. Rather, it should guide the researcher in their use of qualitative or quantitative analysis methods.

Chapter 3.   Methodology

I used mixed methods to explore my research questions: interviews with environmental content creators and a qualitative multimodal analysis (Ledin & Machin, 2020) of TikTok videos from the three case studies, which was guided by a framework for determining the health of information ecologies developed by Phillips and Milner (2021). The multimodal analysis operates at the micro-level: here, attention is spent on the interconnected and complex video, sounds, and textual elements of TikTok videos. I then extend this to macro-level analysis of overall network trends and patterns using Phillips and Milner's (2021) information ecologies framework. This combination of multimodal analysis and media ecology theory is novel (see Hautea et al. 2021 for a good application of it), but necessary for a site with as much textual and cultural complexity as TikTok. I occasionally provide quantitative analyses drawing from the video metadata to contextualize my qualitative analysis. Altogether, the overwhelmingly qualitative method guided my research by allowing for both the granular analysis of the videos, and to achieve a more top-down point-of-view to see the larger patterns within the content. Each case study chapter roughly follows this structure: [1] an introduction to the news event; [2] a subsection on the basic findings of the multimodal analysis, sometimes with additional quantitative analysis; [3] an interpretation of these findings, and how they map onto the larger information ecology; and [4] a concluding subsection that contextualizes my findings with existing research.

Data collection took place in December 2022. The data collection process for this project was also a significant methodological challenge, and I have detailed the process below for future researchers who want to explore TikTok. I began the qualitative analysis shortly thereafter. However, I quickly realized that while we have a thorough body of literature about what makes for effective climate communication, I knew much less about what makes for an engaging and popular TikTok video. At this point, I reached out to interview members of the EcoTok Collective, some of whose videos I had already seen in the sample. The semi-structured interviews informed the codebook and instructed me on the kinds of content and topics that are successful on TikTok. Videos were coded for qualities including educational value, individual lifestyle vs. systemic change arguments,

affect, sources, and several others. While I initially expected the codebook to generate quantitative results, in the end it was more a tool to guide the qualitative exploration of the samples. Lastly, I also use basic quantitative analyses to supplement the multimodal analysis, for example, by comparing levels of engagement among videos. In total, this is an overwhelmingly qualitative research project with occasional quantitative analyses that support the findings.

3.1. Data Collection

3.1.1. Choosing the Case Studies

The three climate crisis related events were selected because they span the gamut of contemporary climate news content and each was widely circulated on TikTok. Initially, I planned to look only at the Pacific Northwest Heat Dome, but decided to expand the project to capture a better representation of the entire climate crisis discourse on TikTok. The three case studies are the 2021 Pacific Northwest Heat Dome[6], Just Stop Oil activists throwing tomato soup at a Van Gogh painting[7], and the passing of the Inflation Reduction Act (IRA). These three case studies cover a gamut of environmental discourses—disaster, protest, and policy.

There were a few other case studies I considered studying. The 2022 United Nations Climate Change Conference (COP27) took place while I was deciding on case studies. This was an initial contender for a case study, given the amount of media coverage COPs generate. However, several issues arose while testing data collection on COP27, of which one in particular points toward a shortcoming of this data collection method. The first complication is that the discourses surrounding COP27 are highly varied. Protests happen outside the venue, world leaders give speeches and make (or fail to make) pledges, and memes circulate wildly. These discourses are distinct from one another, and while they are certainly interrelated, it would be difficult to draw

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[6] This is sometimes referred to in the media as the "Pacific Northwest Heat Wave". I use the terms interchangeably.

[7] The protest was nicknamed "Soupgate" on Twitter. I refer to it as the Just Stop Oil Soup Protest.

comparisons across such heterogeneous content; then do it again when comparing to Heat Dome videos. COP27 could have been a sole case study for this thesis project, perhaps organized by dividing its distinct discourses into subsamples. The second issue is logistical. Despite the scraper's TikTok account being set to English, and searching via a VPN in the United States, searching for hashtags related to #COP27 yielded a very high proportion of non-English content. Non-English content is of great importance to study, of course, but impossible with my limited linguistic resources as a graduate student. Lastly, COPs are frequently chosen as the subjects of social media and news imagery studies (see Grittman, 2014; Harold et al., 2020; Lynn, 2018; Wardekker & Lorenz, 2019; Wozniak et al., 2017), and I wanted to depart from this saturated field.

3.1.2. Scraping from TikTok

Videos were scraped from TikTok's Search page using custom Python code and a third-party API. Using Python code to scrape TikTok is a common practice (see Basch et al., 2020, 2022; Hautea et al., 2021; Kaye et al., 2022; Li et al., 2021; Lovett et al., 2021; Wu et al., 2022). Some have posted their bespoke code as appendices; however, this code is usually broken out of the box because TikTok frequently changes their API access policies and because open-source scraping APIs regularly fall into dilapidation. At the time of data collection in December 2022, internal changes at TikTok broke almost all unofficial scraping APIs. The API I settled on using, TikAPI (*TikAPI Unofficial TikTok API*, n.d.), was only partially functional at the time. The Python code I wrote is attached in the appendix for transparency, however, it is not likely to be functional by the time this is published given how often TikTok makes changes to the API.

The Python code connects to TikTok's user-facing Search function. Collecting from the Search page reflects a more 'natural' sample of videos, emulating a real user's experience. The custom Python code accesses the same TikTok video search pages as a real user, keeping up with surges in popularity and the latest posts. This scraping method would be useful for future studies that require real-time or near real-time data collection. This also helps to circumvent the issue of hashtag 'noise' that researchers have previously battled (Hautea et al., 2021). TikTok users will regularly post videos with

completely irrelevant hashtags, instead tagging the video with whatever term is trending that day (Klug et al., 2021). Because climate change-related hashtags sometimes start trending independent of any climate event happening, searching for videos containing these hashtags will relay many unrelated videos (Hautea et al., 2021). While TikTok does allow users to search by hashtag and browse videos that share a certain hashtag, the structure of the site nudges users to instead use the search function, or more simply, to scroll through the curated Fyf. Inductively searching for terms related to the case studies produces a narrower cross-section of the overall climate discourse but achieves a sample with a much higher proportion of relevant videos, meaning less time had to be spent cleaning the samples.

To collect the sample, I used a combination of search terms related to the case study. I systematically searched each term combination, including spelling variations (i.e. "heatdome" vs "heat dome") and region acronyms (i.e. "YVR" versus "Vancouver"), using "+" as the "AND" operator (Table 1; Appendix A). I created a new account before starting data collection for each case study to avoid algorithmic personalization as much as possible.

Table 1   Example of search query combinations

YVR+heat+dome	Oregon+heat+wave
PNW+heat+dome	Washington+heat+wave
Seattle+heat+dome	BC+heat+wave

A comprehensive list of all keyword combinations that resulted in a video being included in the final sample is available in Appendix B.

I searched about 100 phrases for each case study, and each search downloaded about 100 videos. A massive sample of about 70,000 videos containing many duplicates was collected. Thankfully, TikTok assigns each video a unique ID, so duplicates could be sorted out, resulting in about 2,500 unique videos across all three samples. From here, videos in the sample were included if they fit within the relevant range of dates (Table 2). The relevant range of dates was determined by watching videos in the sample; for example, videos in the Heat Dome sample rapidly became less relevant about one week

after the end of the disaster[8], so videos posted after July 3, 2021 were excluded. The Inflation Reduction Act had a longer shelf life as the bill weaved its way through congress. This inclusion criteria proved to be remarkably effective at sifting out irrelevant videos, generating a final sample of n=472 videos over all three case studies. After the dates were settled, some videos in each sample were manually excluded from study during the qualitative analysis phase because they were not connected to the climate event. The Heat Dome sample had the highest portion of videos that were manually excluded, at about 10%.

Table 2   Sample collection dates and totals

Sample	Sample collection dates	Number of videos in sample
Heat Dome	June 22, 2021 – July 3, 2021	210
Just Stop Oil Protest	October 14, 2022 – November 9, 2022	123
Inflation Reduction Act	July 7, 2022 – November 11, 2022	139

The sample is, of course, not a comprehensive collection of all videos on these topics. The videos in the sample were recommended by TikTok's Search algorithm. On one hand, using the search function to generate a sample is good because it reflects the results a real user would receive. On the other hand, the search function misses results or obscures other results in ways that are not disclosed. For instance, at least one video about the heat dome from the Washington Post's TikTok account was not returned in the sample despite being highly circulated. The sample is not perfect, but I believe is representative of the three information ecologies under study.

3.1.3. Interviews

As was done in the literature review, we can look to the fields of environmental communication and science communication to understand current best practices

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[8] The TikTok Search function began returning videos of other heat waves, or of other content that had to do with the Pacific Northwest as the historic Heat Dome fell out of the news cycle.

surrounding communicating the climate crisis. There is a vast library of empirical research that seeks to understand how people can be persuaded to care about environmental issues. There is a further subset of research that studies environmental communication on social media, most frequently on Twitter (Pearce et al., 2019). Of course, the existing research about what makes for effective environmental communication can be cautiously applied to TikTok. Studies of YouTube and other video sharing sites are particularly relevant to this research. Based on this literature, we have an idea of what could make for effective climate communication on TikTok, but we do not know what factors contribute to making a TikTok video popular.

To understand what makes a video popular, I interviewed several content creators about their experience using the platform for climate communication. These interviews were conducted with the purpose of informing the multimodal analysis process and accompanying codebook. For example, all of the codes from section 2 of the codebook on *Emotions, delivery, tones & affect* (attached as Appendix C) were specifically mentioned by interview subjects as factors that they felt could impact the engagement a video receives. A semi-scripted, conversational interview protocol was written that broadly asked about the influencers' backgrounds on the platform, their content creation process, and what individual factors they found to predict a successful video. Interviews were performed over Zoom. The mean interview duration was 46 minutes. At times, I diverged from the interview protocol to pursue conversation threads as they came up. While not always strictly relevant to this project, this interview technique alone led to several discoveries and rose several questions that will be discussed in the Future Research section.

Influencers were first recruited from the EcoTok Collective, which is a collective of 17 "TikTok Environmentalists". EcoTok was founded by influencers Abbie Richards (@tofology), Alaina Wood (@thegarbagequeen), Alex Silva (@ecofreako), and Sabrina Pare (@sabrina.sustainable.life). A request to speak with influencers was sent through EcoTok's website contact form, and the first interview was scheduled with an EcoTok member shortly after. From there, snowball sampling was used to connect with other influencers both inside and outside of EcoTok. The final sample included four influencers and a pair of representatives from one eco-content media organization (Table 3). All

creators were based in the US or Canada. The five interviews were conducted over Zoom between December 2022 and February 2023.

Table 3   Interview Participants

Username	Name	Biography	Followers	Likes
@earthtodezz	Dezz	Advocate for Earth 🩵 Pique Action Host | Sustainability 🌱 Earthtodezz@gmail.com	32.3k	478.6k
@simpleenvironmentalist	Emma	Emma ✨ 🌈 Lazy low waste living on a budget ✌️ Zero waste Spokane 🌍	28.2k	1.2m
@eco_og	Gabrielle	people & planet 🫂 Positive & accessible sustainable community 🩵 PhD student ♀ GA	33.2k	873.6k
[pseudonym]	Mabel*	[redacted]	~150k	~9m
@pique_action	Raz and Shayna**	The opposite of doom scrolling! Micro-documentaries on climate solutions. 🎥	185.6k	954.4k

Account information was collected in July 2023.

* "Mabel" stands in as a pseudonym for this interview participant who spoke on the condition of their input beind anonymized.

**Shayna is a Social & Communications Manager and Raz was VP, Audience Growth at Pique Action. Both spoke on their personal experience using TikTok and on the condition that their views do not represent the views of Pique Action.

3.2.   Analysis Methods

3.2.1. Quantitative Analysis and Account Types

Following the interviews, I began sorting through the downloaded TikTok videos. For cross-comparison, I manually coded all TikTok accounts into four categories: influencers, average users, official accounts of non-news sources, and official accounts of

news and environmental organizations. As I had hoped for when selecting the samples, the share of account types differs greatly in each sample (Table 4).

Table 4   Videos per account type

	Protest	*n=124*	**IRA**	*n=139*	**Heat dome**	*n=209*
	#	%	#	%	#	%
Influencer	50	40.3%	40	28.8%	51	24.4%
Official News	29	23.4%	56	40.3%	5	2.4%
Official Non-news	7	5.6%	11	7.9%	2	0.9%
Average accounts	38	30.6%	31	22.3%	151	72.2%

Official accounts for news and environmental organizations were coded manually. This includes accounts like National Geographic, Yahoo! News, and The Weather Channel. Determinations were made according to the account's biography. For instance, if an account called themselves a news organization in their biography, the account was coded as official news. Similarly, if a user appears to represent a news organization, they are coded in this category. This replicates a naive user's experience—an account that self-describes as news, or that at least looks newsy, might be perceived as trustworthy. This appearance of trustworthiness could be illusionary. However, exceptions and deceptive accounts are discussed later.

Celebrities, politicians, companies, and other accounts representing entities with an established public presence are increasingly using TikTok. They are categorized as "official non-news", shortened to "non-news". Examples of accounts in this category include ToysRUs, the US Democratic Party, and the organization Americans for Tax Fairness. Understanding that content shared by elites or by brands may be perceived as trustworthy even if they have nothing to do with the topic at hand (Sterrett et al., 2019), it is important to separate these accounts from the others for necessary analysis.

Influencers are the third category. "Influencers," as was explored in the literature review, is a slippery and not well-defined term that depends heavily on self-identification. At the risk of accidentally including some accounts whose owners would not consider themselves to be influencers, I categorize accounts that have both a high number of

followers and a high number of videos, who were not already categorized as an official account, as "influencers". To operationalize this, an account is considered an Influencer in this project if:

- The account has more than 10,000 followers;

- AND has more than 50 videos (to show they've been actively building a following);

- is NOT an Official Account of either type

Finally, accounts that don't meet any of the above criteria are labeled Average accounts. Average accounts represent users who post only occasionally or have not built a significant following. Average users produce the bulk of TikTok's content, like on most sites that rely on user generated content. They are separated in the sample according to these rules:

- Less than 10,000 followers OR less than 50 videos

- NOT an Influencer, Official Non-news, or Official News account

3.2.2. Qualitative Multimodal Analysis

Because this thesis grapples with the quality of information and the effectiveness (or ineffectiveness) of climate communication, I rely on the work of Phillips and Milner, who outlined a media-ecological approach to understanding misinformation in sociotechnical online systems (2021). They argue against assessing media in terms of black-and-white binaries (either misinformation or not), which has contributed to current day struggles with content moderation systems and has triggered an individualized, "neoliberal" framework for dealing with bad information online. Instead, they argue for systemic changes that naturally raise the capacity for good information to circulate, and bad information to sink to the bottom. Although Phillips and Milner do not specify this, I argue that arranging information along a spectrum of harms, rather than into buckets of acceptable or unacceptable, requires a qualitative method. I assess the TikTok content in context to assess the general "health" of the information ecology for the purposes of effective climate communication. This means sketching a map of the actors, content, and

information flow, and making judgments on their contributions to the overall ecology. It also means tracing content as it is remixed across the site. TikTok is a highly interconnected and affective network, and content that started out as a positive contributor to the ecology can quickly be remixed into something worse. Using Phillips and Milner's framework in practice meant doing an initial viewing of all of the videos to sketch a rough draft of the network map, then re-watching them to trace the trends and reoccurring themes in context.

A qualitative analysis also lends itself to thoroughly interrogating non-textual content. A typical TikTok video will combine sounds, visuals, and text. Often, the viewer needs to experience all three modes to understand the TikTok video. A method that takes all three modes of communication and the complexities of their interaction into consideration is necessary. Kress and Van Leeuwen (2001) argued that communication is becoming more visual because of the proliferation of screens, access to high-speed internet, and a cacophony of other ICT developments. The way media is produced has also changed. Media has historically been monomodal—a painting was only a painting, books were printed without images and so on (Ledin and Machin, 2020)—but this is changing, as technological advancements have enabled digital cultures to emphasize multimodality and imitation (Dean, 2021). TikTok and networks like it are continuing this trend toward increasingly multimodal communication. I use Ledin and Machin's (2020) Multimodal Analysis to guide this portion of the research project.

Multimodal Analysis asks the researcher to pay attention to the interaction of different modes of communication. It also encourages analysis at both micro-level textual production decisions (i.e. font choice, focal length, sound effects), and to the overall effect of the piece. Furthermore, Ledin & Machin (2020) stress the importance of analyzing media with "awareness of contexts and typical patterns of use," (p. 10). To an extent, it is not possible to replicate a TikTok user's experience, especially because this project seeks an overhead, ecological understanding of the landscape of videos. Certain compromises are made to achieve this top-down view: watching them on a laptop instead of a phone, and certainly out of the order that TikTok would have algorithmically queued for a user to view. These are important considerations for future research projects which might employ more qualitative methodologies (i.e. walkthrough, Light et al., 2018), but

the drawbacks of an ecological approach to multimodal analysis are justifiable given its capacity to draw high-level comparisons between subsamples while still taking into account low-level textual decisions.

At first, an elaborate codebook was written to perform a systematic analysis of the samples. The codebook is attached to this thesis as Appendix C. This codebook was developed following the interviews with the eco-influencers, according to many of the criteria that they mentioned were important to making highly viewed and engaged-with videos for TikTok. Some codes were added because of the input from the interview subjects. For example, two influencers mentioned that they felt videos that depicted sadness did not receive much circulation, so I added code 2G "Sadness/grief" to the codebook. There were many versions of this codebook, which included criteria as descriptive as *does the video mention "climate change" or "global warming"?*, to codes as ambiguous as *is the video funny*? The codebook also recorded TikTok-specific features, like if the video contained special effects or imitative features like Duet and Stitch. The final codebook had 26 individual codes. I coded in an Excel spreadsheet which contained all of the video metadata and links to the videos. I watched each video in the sample multiple times. The idea behind using this Excel spreadsheet for coding was to eventually be able to cross-tabulate codes against each other, but in the end, the codebook was used only to guide my notetaking and qualitative analysis of the samples, and not for sophisticated quantitative analysis.

3.2.3. Method Limitations

While the methods I use in this thesis are innovative in several ways, there are drawbacks. Firstly, on a practical matter, as a graduate student I had to develop the codebook and analyze the content without the assistance of a second person. I am not doing content analysis or framing analysis in the traditional, quantitative sense as I am not able to measure the frequency of themes across the case studies. The inclusion of a second researcher on this part of the analysis process helps eliminate bias and ensures the results are valid and reproduceable (Niederer & Krippendorff, 2019). With more time and funding, I could revisit this portion of the project in the future to quantify certain codes

and fund the work of an additional coder, but I am confident that my qualitative analysis is thorough and consistent enough to support my findings. Having fixated on this question for far too long, I finalized the codebook, acknowledging its role as a research companion and not as a logbook, and began systematically analyzing the videos, which took three months.

This research project could be further expanded by interviewing more eco-influencers, or by expanding the interviews to cover journalists and content creators at advocacy and non-profit environmental groups. Having interviewed six people, I do not feel as if I have reached 'saturation' (Francis et al., 2010). With this small of a sample of interview participants, I am careful to support insights gleaned from the interviews with more substantial evidence from the multimodal and quantitative analyses.

Finally, while I assert that scraping TikTok videos for the purpose of mapping the content landscape contests what the company deems as 'within-bounds' access to data (as implied by the affordances of the site and the restrictive API access), this birds-eye view is far removed from the on-the-ground regular user. Qualitative methods that analyze TikTok videos in situ, taking into consideration the videos that the algorithm recommends in context, would provide a more user-focused understanding of content on the platform. I have chosen a method to generate a more holistic picture of the landscape, but it does not at all replicate how a TikTok user would experience the platform.

3.3. Access, Ethics and Privacy

3.3.1. Note on Access to TikTok

Research access to social media platforms remains heavily restricted. Publicly, the reasoning for these restrictions usually has to do with data security. This is a legitimate concern after the Cambridge Analytica scandal, but with the collateral effect of hushing much-needed ethical scholarly research. These restrictions materialize in the form of compliance policies that clash with research methodologies and ethics protocols. TikTok and YouTube research APIs have extensive and selective application and vetting processes and require academic findings to be sent to the companies ahead of publication

(Brown, 2023). As an MA student at a Canadian university, I am doubly ineligible to apply for TikTok's new researcher API (*Research API*, n.d.). If I were eligible, I would still be unable to carry out this research as necessary because TikTok requires refreshing data every 15 days (*TikTok Research API*, n.d.). Any research project looking to qualitatively examine multimodal content will obviously need more than 15 days. As Bruns (2019) points out, whatever the intention, the effect is the boxing out of researchers. Mapping TikTok pushes back against the intentional obfuscation of its geography. To see the platform 'from above' is to see it from a place of privilege. This privilege is not given to researchers in the API's current form but is necessary to glean an ecological perspective of the network and harms within.

3.3.2. Ethical Considerations and Privacy Measures

This project was reviewed and approved by Simon Fraser University's Research Ethics Board, and closely follows the guidelines for ethical research issued by the Association of Internet Researchers (franzke et al., 2020). All data collected from TikTok for this project is publicly available on the internet. At the time of collection, these videos could be accessed without signing into a TikTok account. However, acknowledging that users do not expect their data to be collected and republished off platform (franzke et al., 2020), all efforts have been made to scrub personally identifiable information from videos included in the study. Faces have been blurred and usernames have been redacted, except those of news organizations or of public figures. Interview subjects provided informed consent both before and after the interview, and were offered several options to preserve their privacy, ranging from full de-identification (meaning their name, username, and other personally identifiable information discussed would not be included in the project) to no privacy measures at all. One interview subject elected to be de-identified. Two subjects who work for the same company agreed to be interviewed without being de-identified on the condition that it is made clear that their thoughts do not reflect the views of the company they work for. The other four subjects were comfortable without any de-identification.

Chapter 4.   The Pacific Northwest Heat Dome: The Ambivalence, Creativity, and Climate Disconnection of Users

On June 22, 2021, amateur weatherman Frankie MacDonald took to his YouTube and TikTok accounts to sound an alarm about the potential for a historic heat wave to hit the Pacific Northwest. In his typical boisterous style, Frankie, whose TikTok video was the earliest captured in the dataset for this case study, shouts that the heat wave could shatter temperature records. The US National Weather Service and Environment Canada both issued heat warnings the following day (National Weather Service, 2021; Plana, 2021). As the Heat Dome settled over the Pacific Northwest, headlines began to roll in about falling records, rolling blackouts and deaths. The severity of the heat wave was unprecedented, and the extreme weather was connected to climate change from the beginning (see Chow, 2021), even in conservative publications (see Casiano, 2021).

The effects were disastrous. Residents of the Pacific Northwest were particularly sensitive to this heat because about half of households did not have air conditioning systems (Cassidy, 2022), and low-income, homeless populations, and people with pre-existing health conditions were especially vulnerable (Yumagulova et al., 2022). Emergency response networks, still strained by the COVID-19 pandemic, were quickly overwhelmed in many municipalities (Yumagulova et al., 2022). People were stuck in their homes, in their cars, or in public cooling centers—wherever they could catch a break from the heat. Residents took to social media to share their experiences. A popular heatwave video on TikTok was a family of black bears taking a dip in a residential pool, which was shared 35,000 times and viewed nearly 5 million times. Another video, only 7 seconds long, showed the owner of a heat pump spraying the machine with water to keep it cool. It received 1.5 million views. Users shared tips to stay cool without air conditioning, like setting ice in front of fans or laying on wet towels. The videos were of people making light of a tough situation. They rarely took a serious tone. There was also a distinctive lack of content from official sources. TikTok videos from news organizations, government divisions, and other official accounts were exceedingly rare in this sample in comparison to the other case studies. As the extreme heat continued,

TikTok users creatively expressed their personal experiences: they superimposed their faces onto images of the sun, cooked eggs on the pavement, and impersonated their struggling air conditioning units. Many were appropriately set to the Glass Animals' hit song *Heat Waves.* Videos depicted pet and farm animal owners anxiously trying to keep their animals cool.

The heatwave worsened over the coming days. The town of Lytton, BC broke all-time Canadian temperature records after it reached 49.6C/121F, and within hours was completely destroyed by a near-spontaneous wildfire (Isai, 2021). All-time temperature records in Washington and Oregon were broken (University of Washington, n.d.). As temperatures finally subsided nearly a week after records were broken, the devastation came into focus. 619 people died as a result of the heatwave in British Columbia (Government of Canada, 2023; White et al., 2023)—the deadliest natural weather disaster in Canada in more than 200 years. Officially, 183 people died because of the heat in Washington and Oregon (State of Oregon, 2021; University of Washington, n.d.), but investigations report the death toll for the two states could be as high as 600 (Popovich & Choi-Schagrin, 2021). 650,000 farm animals died under the "inferno-like heat" in British Columbia (*Canada's Top 10 Weather Stories of 2021*). Barnacles, muscles, star fish, crab, and other invertebrates that bask in the shallow coastal waters were all but wiped out. White et al. (2023) estimate that billions were killed. News coverage following the dissipation of the heatwave called it a "1 in 1000" or "1 in 10,000 year event", and most attributed the cause in part to human-caused climate change (Berardelli, 2021; Milman, 2021; Mulkern, 2022). A week later, a team of scientists performing rapid attribution analysis, which determines the influence of human-caused climate change on the likelihood of weather events, published their findings.

> "[The Heat Dome] was found to be virtually impossible without human-caused climate change. The observed temperatures were so extreme that they lay far outside the range of historical temperature observations. This makes it hard to state with confidence how rare the event was." (Philip et al., 2022).

The findings of the rapid attribution analysis made international headlines (Elamroussi, 2021; Fountain, 2021; Januta, 2021). It is rare, but becoming more common, that a weather disaster in North America is described as "virtually impossible" without climate change. "Crisis" framings are becoming more common in news coverage (Parks, 2020). However, news coverage still tends to ignore the role climate change when reporting on extreme heat events (Fisher, 2023). Television segments about climate change remain a miniscule portion of overall programming (MacDonald et al., 2022). The failure to connect the Heat Dome to climate change in news coverage is replicated on TikTok. Videos in the sample almost never mention climate change or global warming. Depictions were mostly limited to personal experiences; microcosms of the bigger climate disaster unfolding on the west coast. The vast majority of videos in this sample were posted by average users. News organizations, environmental non-profits and other professional climate communicators, and influencers were almost entirely absent from the sample. Despite the homogeny of account types represented in this sample, the content was very heterogenous. Creators found inventive and authentic ways to tell the story of their struggle under the Heat Dome, often enabled by TikTok's editing tools. The videos overwhelmingly depicted ambivalence. People were experiencing anxiety and worry about the severity of the heat, but conveyed it using humor.

4.1. The Absence of News and Environmental Advocacy Organizations

4.1.1. Mapping the Terrain

Before it is possible to perform a critical analysis of TikTok's capacity as a site for environmental communication, we have to map the ecology of the network. Who is producing information, and to what extent is that information being circulated by the infrastructure? After we detail the individual components of the terrain—actors, content, and emerging trends—we can begin to assess the health of the information ecosystem. In this case, the "terrain" is a set of 208 TikTok videos posted between June 22, 2021, and July 3 2021, retrieved from repeated queries on TikTok's Search page.

Of 209 videos in the heat dome sample, only five were posted by news accounts or environmental advocacy organizations (Table 5). Among these were Freshdaily Vancouver, a TikTok-only news and culture account; the Nature Conservancy in Oregon, and The Weather Channel. Two videos were posted by Official Non-news accounts: one by the indie pop duo Tegan and Sara, and one by ToysRUs Canada. It's also notable that this is the only sample in which average accounts had the highest number of videos in the sample.

Table 5   **Mean plays and engagement per account type in Heat Dome sample**

	Number of videos	Comments+ Shares	Plays	Engagement
Average	151 (72%)	1705	215634	126
Influencer	51 (24%)	1466	163220	111
News	5 (2%)	690	86325	125
Official Nonnews	2 (1%)	435	40683	94

Note: "Engagement" is Plays/(Comments+Shares).

The few news videos and videos from official non-news sources were also significantly less watched and less engaged with than videos from average accounts and influencer accounts. What could explain this lack of news content? Is there something that could explain the high proportion of videos created by average accounts compared to the other case studies? There are a few reasons this could have happened.

First, it is possible news organizations had not yet flocked to the network in 2021. There is more than a year between this case study and the other two case studies during which more news organizations and NGOs could have joined the platform. It's reasonable to imagine that large organizations would be slow to adopt new platforms, but this would still be surprising given that by the time of the heat dome in the summer of 2021, TikTok had already become the most-trafficked domain of the year, dethroning Google (Tomé & Cardita, 2021). Further, looking at when the most-represented news organizations across all three samples joined TikTok, this does not seem to be the case. NowThis and Yahoo! Joined TikTok in 2019. The Washington Post, which was not a top account in the sample, but is well-known for its early adoption of TikTok for news coverage (Nover, 2019), also joined in 2019. In 2020, Vázquez-Herrero et al. reported that six major North American news media organizations had accounts on TikTok. (Klug

& Autenrieth, 2022) (2022) later identified 264 US publications with official TikTok accounts, although many did not maintain their accounts for long. News organizations are at least giving TikTok a try. There is not yet research that has tracked the adoption of TikTok by advocacy organizations. Short of claiming the extra year and few months between the Heat Dome and the other two case studies is fully responsible for the expansion of news content, it could at least explain some news adaptation processes—an ample time frame for committed organizations to figure out how to post content that does well on TikTok.

Another possibility is that there was news content being created, but it did not see as much circulation as average users' content and thus did not show up in search results. News content from this subsample and from others often clashed with the platform vernacular, either at a technical level (i.e. horizontal video), a cultural level (i.e. a general ignorance to social network trends), or a social level (i.e. not using the talents of young news hosts—this is explored in-depth in Chapter 7). The four news videos in the Heat Dome sample represented varied levels of TikTok cultural literacy. Performing a brief multimodal analysis of these four videos, we can see certain successes and failures. The Weather Channel (@weatherchannel) adapted a horizontal weather map clip from television or their website. Their meteorologist, identified using a traditional news lower-third graphic, explains that the region is expected to experience a record-breaking heatwave. This video received 19,000 plays, the lowest of the four videos in the sample. The Nature Conservancy Oregon used Glass Animals' appropriately titled song *Heat Waves*, which was trending on TikTok at the time, as the background music to wild animals cooling off in buckets of water. Despite matching the vernacular well and the video earning 80,000 plays, it was the only video the Nature Conservancy Oregon ever posted to their account. Freshdailyvancouver's video, which featured a young user green-screened on top of images of Vancouver and a stock photo of a man spraying himself with water, was the third most-played news video in this sample. This video is the only one in the subsample that mentions that people have died from the heat. It is also the only video in the sample produced by a news account that is properly formatted for TikTok and that makes use of TikTok's Effects. However, this visual depiction perpetuates the same portrayal of heat waves as opportunities to chill in parks and splash in pools that

news organizations have been castigated for doing (O'Neill et al., 2023; Shaw, 2021). Unlike news organizations, however, TikTok creators face pressure to match the unserious vernacular of TikTok, so this may be more difficult to change. However, even if the news organizations were not literate in the TikTok vernacular, their content would likely still turn up in this sample.

Beyond the pains of adopting a new platform, the distributed nature of this weather disaster across a huge region meant millions of average people and TikTok users could easily record their first-hand experience with the disaster, meaning the volume of content from average accounts could simply outweigh the few videos produced by news organizations. This is also unique compared to the Inflation Reduction Act and Just Stop Oil samples, in which average users would need to put more thought and effort into creating responsive content, rather than pointing the camera toward themselves and recording. This is reminiscent of early social media scholarship on backchannels which theorized these networks as a space for rapid mass communication during times of emergency (Sutton et al., 2008). TikTok's ability to geolocate content and filter videos produced nearby into users' feeds makes this type of community-oriented content production and consumption possible. However, from the videos that collected millions of views, we can tell that TikTok did not limit viewers to affected areas. Videos from average users experiencing the Heat Dome firsthand were circulated around the world. The sheer volume of content being produced by average users versus news organizations and other account types might have naturally tipped the algorithmic scale in favor of average users. Whatever the reason, the major finding here is that news organizations and advocacy organizations were missing from TikTok during this important moment for climate crisis messaging.

Figure 1   **Screenshots of news videos in Heat Dome sample**
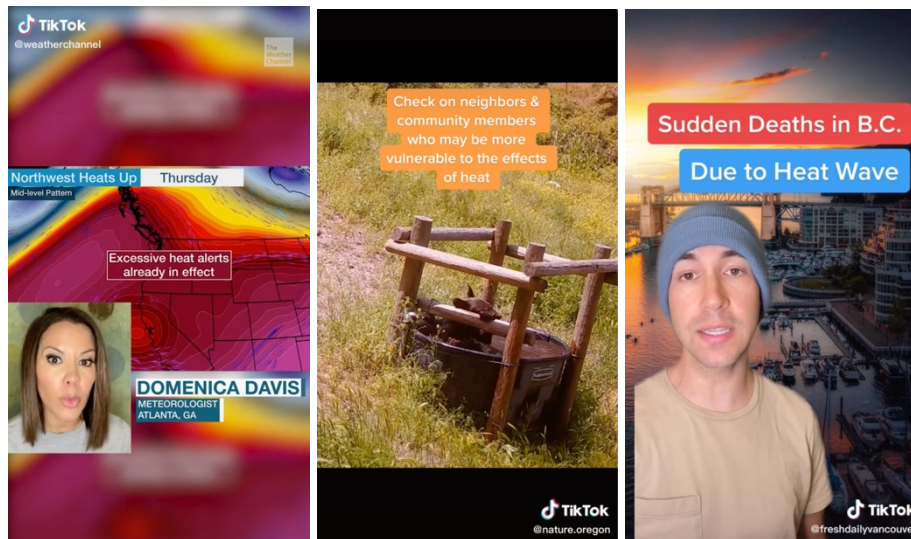
Screenshots from three of the news videos in the Heat Dome sample. Left: a reporter from The Weather Channel uses weather prediction maps to warn viewers of the oncoming heat wave. Middle: The Nature Conservancy of Oregon posted a video of bears cooling off in a tub of water. Right: a young reporter from Freshdailyvancouver talks about sudden deaths caused by the heat wave in British Columbia.

Beyond the news content, or lack thereof, most videos in the Heat Dome sample were posted by average accounts. These videos saw the highest number of plays, comments, and shares of any account type in this subsample. What are these users posting? Is it informative, and does it contribute to a healthy information ecology? Is it even important for there to be news content from official sources on TikTok? This is a question that will be grappled with throughout this thesis.

4.2.   Laughing Through It: Ambivalence and Humor during Disaster

Environmental communication does not need to be about environmental harm. Although much attention is paid to the issues, environmental communication can be about solutions. Pezullo & Cox (2021) argue that effective environmental communication requires both crisis and care. Crisis attracts attention, and care explains that something can be done about it. Too much emphasis on crisis can lead to anxiety and inaction, as EcoTok members have pointed out (Baker, 2020), while too much care can coax people into being too comfortable. A third avenue that could complement the balance of crisis

and care could be humor (Boykoff & Osnes, 2019). Humor can help reframe climate change from a logical, scientific issue to a cultural one (Boykoff & Osnes, 2019; Skurka & Lee Cunningham, 2023). Many videos in the Heat Dome sample used humor to make light of a very tough situation. Others creatively cataloged the harms and their efforts to deal with them. TikTok scholarship has tended to focus on the humor of the network as the cornerstone of the platform's vernacular (see Vázquez-Herrero et al., 2020). Similarly, positivity in a news story has been shown to be a predictor of shareability (Al-Rawi, 2017). Some have begun to complicate humor on TikTok by pointing out its ambivalence (Hautea et al., 2021) and its occasionally "socially corrosive" effects (Matamoros-Fernández, 2023). This section of the thesis extends the work that complicates the performance of humor on social media.

At this point, it is important to acknowledge the methodological challenge of dealing with polysemy. Polysemy, literally meaning 'multiple meanings', is common in internet culture (Phillips and Milner, 2021). One image can be decoded in many different ways, depending on the person doing the decoding (Hall, 1980). It is often difficult to tell the difference between ambivalence and polysemy, and this ambiguity is sometimes constitutive of internet culture (Hautea et al., 2021; Phillips and Milner, 2021). I have emphasized mapping the descriptive, less ambiguous multimodal elements of TikTok videos in this thesis. However, it is impossible to ignore the polysemous and harder-to-decipher meanings baked into these videos. To wade through the polysemy with as much scholarly validity and rigor as possible, I have tried to consider all interpretations of the videos rather than choosing only one. This also includes the interpretation of meaninglessness—it's more than likely that videos here were not created with much thought or intention at all. There is a risk of reading too much into the videos to find meanings that aren't there. Here, I will again defer to Stuart Hall—whatever the intentions of the video creators were, what matters for the purposes of this thesis and for the larger digital culture of TikTok is how the audience interprets the video.

4.2.1. Disturbances to Everyday Life

Figure 2   Screenshots of average user-created videos depicting disturbances to everyday life under the heat dome
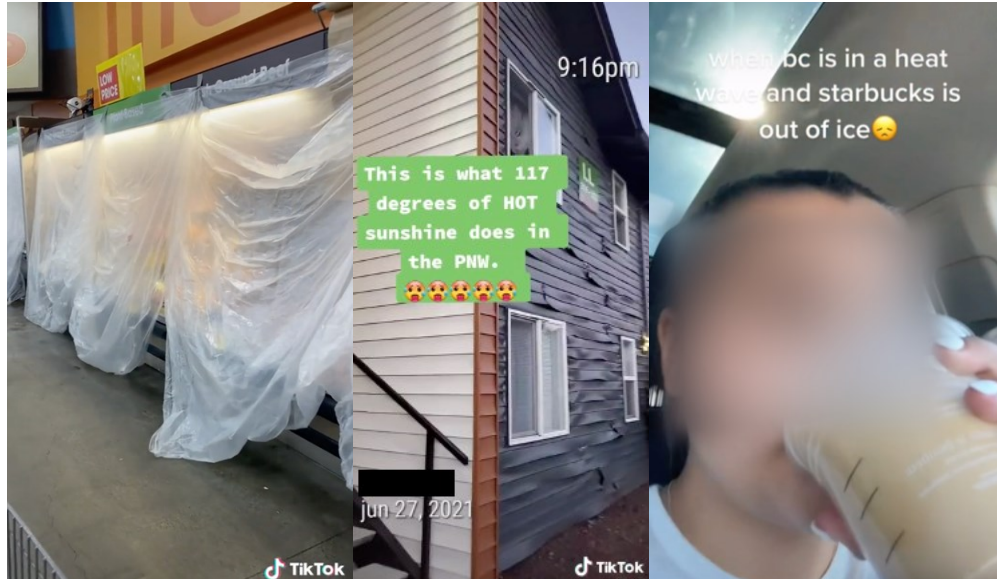
Screenshots from three videos posted by average users in the Heat Dome sample. Left: a grocery store has covered their refrigerators aisles in plastic wrap. Middle: the vinyl panels cladding a residential building warped in the extreme heat. Right: a person driving complains that Starbucks had run out of ice.

Residents of the Pacific Northwest had their day-to-day lives affected in unexpected, but often mundane ways. Videos showed buildings' vinyl cladding warped and melting, buckled roadways, and candles melting (Figure 2). Users recorded tricks to keep air conditioning units functioning, or to turn regular fans into makeshift cooling systems using wet towels or bowls of ice. The videos draw attention to how unusual and unexpected this level of heat was for the region. Several videos explain that while these temperatures are not unheard of in parts of the Southern US, many homes in the Pacific Northwest do not have air conditioning systems. Infrastructures were affected during the heat wave and governments and people were not prepared.

The high number of videos depicting disturbances to everyday life is probably to be expected in any study of social media use during weather disasters, but there are still a few quirks with this finding. Although the videos were recorded by TikTok users, the users themselves typically do not appear on camera. This is a departure from advice that influencers interviewed for this project provided—that having a face in the video is

integral to the video's popularity. Despite not depicting humans, videos of this genre were very highly circulated. Six of the ten most-played videos in the heat dome sample depicted disturbances to everyday life, and all but one of these videos were posted by Average accounts. The videos depict people going about their days amidst the heat, meanwhile cataloging evidence of how bad it is. (Nerlich & Jaspal, 2014) recognized a similar visual theme of people "getting on with it" in print news coverage of climate disasters, and it persists on TikTok.

4.2.2. [*Nervous laughter intensifies*]

Figure 3   Screenshots of user-created videos using Greenscreen effect

Screenshots from three videos that use the greenscreen effect on top of an illustration of a hot sun, and a trending sound effect. Left: Washington state version. Middle: Oregon version. Right: British Columbia version.

This trend utilizes a trending preset in TikTok's Greenscreen effect to isolate only the user's eyes and lips, which can then be superimposed onto other content. These videos were recreated several times throughout the sample, sometimes changing the caption to indicate a different geographical region or choosing a different photo of the hot sun (Figure 3). All lip-synch to a trending TikTok sound: "I feel like being a b**** today". They are undeniably silly, but still visually convey the heat as feeling near apocalyptic and out of their control. Climate change is often visually framed as apocalyptic, which can increase the psychological distance of climate change (McDonald

et al., 2015), and obscures the more subtle effects of climate change that are happening today (Corner et al., 2015; Doyle, 2022).

Figure 4   **Screenshots of creators reacting to rising temperatures in their weather apps**

Screenshots from videos that use the "too much pie" trending sound effect and overlay screenshots from weather apps to display the increasing temperatures.

Some videos in this category of analysis repurposed a viral TikTok sound in which the narrator progressively raises their voice in response to being served "too much pie", to convey their worry as the thermometer continues rising past the usual temperate summer high temperature for the region (Figure 4). They are tinged with a certain *unhingedness*, excessively lip-synching to the trending sound and violently shaking the camera. Users then pasted screenshots of the temperature on top of their impression of the viral pie-eating sound. The result was a series of funny, anxiety-riddled 10-second videos. Like the sun impersonation videos, this exact formula was followed by a handful of creators, each receiving a high number of plays. Whether they intended for it or not, by

participating in this trend, these videos are in conversation with each other. Very few videos featuring the creator would attempt to take an intentionally serious tone. This contrasts videos in the *disturbances to everyday life* category, which were usually void of humans. Those that were more serious in tone tended to rank toward the bottom of the list in terms of engagement.

These videos attributed the cause of the heat wave to the sun feeling vengeful for comedic effect. After all, when a disaster this bad strikes, people will want something to blame. However, it points to a potential misunderstanding of the role of climate change in heat disasters. Hautea et al. (2021) pointed out that TikTok videos of this genre frequently conflated climate change with other environmental issues like plastics pollution or ocean acidification. While these misunderstandings were in good faith, and ultimately perhaps even reinforced viewers' perceptions of the interconnectedness of earth's systems, a similar, but potentially more harmful misconception could be happening here. The Heat Dome was not a natural variation in weather patterns, and not just the sun having a bad week. Even as news organizations were reporting that the Heat Dome was certainly caused or worsened by climate change (see Berardelli, 2021; Mann & Hassol, 2021), and as meteorologists would confirm a few weeks later, videos in this sample were not connecting the Heat Dome to any bigger environmental issues. Videos that blamed the sun for the heat wave are plentiful, but as the final section in this chapter will discuss in more depth, references to climate change or global warming were scant. The videos of people impersonating the sun are the closest videos in this sample got to pointing a finger at any cause. In my coding, I did not see anyone critiquing governments' responses to the disaster or blaming climate change. Very few videos connected the heat wave to bigger environmental issues or called for political action. This may be partly because people making these videos were just trying to get through it, and as George Marshall (Marshall, 2015) points out, *during* a climate disaster is perhaps the worse time to try to engage affected residents. The Rapid Attribution Analysis that directly connected the heat wave to climate change would not be released until two weeks after the heat wave subsided, and the human and animal death toll, still contested in 2023, would not come out until months later.

Furthermore, these videos point to the continued normalization of extreme weather. Individuals and organizations opposed to climate action benefit from media that frames climate change as "business as usual" (Wright & Nyberg, 2017). Climate change as "just something we need to deal with", and climate resilience discourses more generally, both position climate change as an inevitability rather than something that one could take action against (McGreavy, 2016). Normalization is pervasive in this sample. People point to the sun for being too hot; point at Costco for being sold-out of portable air conditioning units; point almost anywhere except to the politicians, policies, environmental non-profit organizations, protest organizers, and others who could feasibly do something about it. On TikTok, humor acts both as a symptom of eco-anxiety and a signal of vernacular fluency.

4.2.3. Remixing Humor: Outlining the Platform Vernacular

Researchers and journalists have emphasized the TikTok vernacular as being funny, trendy, and sometimes non-sensical (Shane, 2022; Vázquez-Herrero et al., 2022). One of the earliest questions I sought to address with this research project was how news organizations and environmental advocacy organizations could practice good climate communication while using this platform vernacular in their content. There is not yet academic research into which tonal, affective components constitute the TikTok vernacular, so I asked the eco-influencers in my study questions to understand it better. First, building from Vázquez-Herrero et al.'s (2022) research, I asked the influencers if they felt it was important to be funny in their videos.

> "Not necessarily. I think it depends on what your personal style is—if that's what you want your audience to know you for. But I think as long as you provide some other value like education, or, I don't know some other sort of value within environmental TikTok, it's maybe not as important to be funny." (Emma)

Emma foregrounded the role of 'personal style', no matter the tone, over being funny. I was surprised to hear this, but a second influencer later reinforced this claim:

"I don't think [humor is] that important. Personally, I'm not a funny person, like I just don't do jokes… And then most of my friends that do [environment TikTok] are just like 'let's talk about this,' but they're not super funny. I think it's more so positivity does better for environmental things." (Gabrielle)

These two environmental influencers revealed an important distinction: it's not important for videos to be funny if you bring something else to the table. So, maybe asking about *humor* was the wrong question. Without prompting it, most of the interview subjects mentioned the importance of positivity and lightheartedness and coming across as relatable and authentic. One described the importance of coming across as a "regular person" and not a proselytizer.

Q: How important is it to keep the videos light?

Mabel: "Oh, it's so important. People don't like it when you're too serious or too pensive."…"I find that the reason why people follow you is for your personality, and if you have too much of a "teacher" personality, people won't want to follow you, and they actually will find fault in everything you do. So I feel that it's really important, especially for me to be lighthearted, like it's not all doom and gloom. There's little things that you can do, and I'm a regular person, and you can do the same like me, and because they're young I do find that I have to be a lot more upbeat and positive about things."

Talking to eco-influencers and in watching videos from this sample makes it clear that it is not possible to reduce the vernacular of TikTok to a set of tones. Instead, the "TikTok tone" during this environmental disaster was reflexive, conversational, and ambivalent. The vernacular then, has less to do with any particular tone, and more to do with not coming across as didactic and participating in the shared network culture. However, this is not necessarily because it sounds condescending or preachy and might have more to do with how the imitation logic of TikTok asks creators to be in conversation with network trends and viewers. Creators acknowledged and made light of their own helplessness, especially those who participated in the "that's too much pie"

audio trend. Creators fluent in the vernacular are in constant conversation with the rest of the network, which constitutes a highly affective, imitative online space (Zulli & Zulli, 2021). They are interconnected with other actors in the ecology. Participating in trends and remixing other's videos is the primary source of sociality (Bhandari & Bimo, 2022). Through this, they put themselves in conversation with the rest of the network. Creators in these videos acknowledge the absurdity of the temperatures under the heat dome. It was not just high for summer, but much higher than they have ever experienced before. At the same time, they laugh about it. This is the same ambivalence that Hautea et al. (2021) identified in climate change videos. Ambivalence, as Philips & Milner (2017) postulate, describes polysemous and complicated tensions held within internet cultures. Etymologically it means a feeling of "both, on both sides" (Philips & Milner, 2017, p. 10). Users are pushed and pulled between competing and contradictory sociocultural expectations on the platform—*don't be too serious about the serious disaster you're living through, or you might not get views*. Making videos about the heat dome using humor is then dually useful as a coping mechanism, but also as a marker of vernacular fluency. Or maybe, as the last section of this chapter will explore, this online sociocultural norm is really an extension of offline norms that already prevent people from talking about climate change in everyday conversation (Norgaard, 2011).

The ambivalence of TikTok's platform vernacular makes it difficult to draw definitive conclusions about the meanings of the videos. Videos adeptly mix humor and worry, anger and sadness, and day-to-day TikTok microtrends with longer lasting vernacular postures, all within a median duration of 19 seconds. The prevalence of Glass Animals' *Heat Waves*, a "sepia-toned," nostalgic pop song (O'Connor, 2020) in the sample illustrates this ambivalence well. If a TikTok is set to this pop song, is the user expressing positive or negative affect? This muddled tone is present throughout this subsample. Hautea et al. (2021) argue that this level of affective ambivalence rules out quantitative analyses and suggest that only thorough qualitative analyses can get to the core of these discourses. On the other hand, as a qualitative researcher, it is tempting to read too far into these texts, which are often vague and have been decontextualized by the act of sampling. TikToks often resemble inside jokes, and the researcher might be on the outside.

An example of this ambivalence is a subset of heat dome videos that, on the surface, downplay the severity of the heat. Several users extoll their thankfulness that they installed AC despite others in the Pacific Northwest telling them it was a waste. "Vancouverites are always complaining whether its [sic] too much rain or too much sun 😶", says one woman imposed via greenscreen over a screenshot of the weather forecast. She then adjusts the temperature on her central AC, while a line from Bo Burnham's *All Eyes On Me* plays: "*You say the ocean's rising like I give a shit*". This video embodies ambivalence, and makes for tricky analysis. How far do we read into this? In one reading, this could be considered climate skepticism: 'the weather fluctuates over time, and people will always have something to complain about. The only solution is to get an air conditioning unit and relax.' On the other hand, maybe she knows the context of the rest of Bo Burnham's song, which is about defeating this indifference to the deterioration of the world (Renfro, 2021). Influenced by the song, she could be asking, *is there really nothing more we can be doing than turning on the AC?* Then again, the polysemy might be the point: maximizing the number of possible meanings could let the video gain popularity among several disparate audiences on different "sides" of TikTok (Maddox & Gill, 2023). Thorough qualitative analysis allows us to retain the full resolution of this polysemy, but this ambivalence does make it difficult to draw conclusions.

The pervasiveness of ambivalence in this sample indicates that it may be partially constitutive of the platform vernacular. It does help solve a problem that professional climate communicators have struggled with—how can you convey the seriousness of the situation, while keeping it lighthearted? At the same time, TikTok creators have brought a refreshing form of reflexive humor to climate communication that could infuse the issue into mainstream cultures and discourses (Boykoff & Osnes, 2019). News organizations could learn from creators in this sample. These trends may be able to teach professional environmental communicators a few lessons about how to creatively portray the personal experience of a climate disaster.

4.3. Animals, Eggs and Other Indices

"It feels like you're breathing fire. I've never experienced anything like this in British Columbia". (TikTok creator captured in Heat Dome sample)

How do you depict a heat wave as intense as the 2021 Heat Dome? Heat waves, of course, are invisible. Capturing a heatwave in a photographic medium requires more creativity than capturing a hurricane, snowstorm, or other highly visible weather disaster. The effects of a heatwave, however, are not invisible. Roads buckle, wildfires spark, and people suffering from heatstroke overwhelm hospitals and cooling centers. Puzzlingly, news organizations have often ignored these effects when covering heat waves, instead publishing images of people sunbathing and playing in pools (O'Neill et al., 2023). They have faced criticism for this (Shaw, 2021), but the question of how to depict the invisible cause of this devastation remains up in the air. Professional climate communicators have also unwittingly visually represented climate change as a far-off and far-away phenomenon (Wardekker and Lorenz, 2019). Videos in this sample, however, display some impressive creativity, and climate communicators could learn from these depictions.

News organizations took a similarly lighthearted tone when reporting on the heatwave, despite knowing that hundreds of people were dead. Journalism analyst Michael Shaw points out the insensitivity of ABC News, the Washington Post, the New York Times, and other organizations that published images of people playing in pools, puppies lapping up water, and people posing with thermometers (Shaw, 2021). Like the TikTok users' content, these organizations did not take a serious tone in their selection of visuals. When climate disasters happen, the effective transmission of personal experiences of those who were negatively impacted are important. DiFrancesco & Young (2010) argue in favor of a "central unifying visual trope" to rally behind, but Corner et al. (2015) warn against using cliched or overly abstract images, and instead suggest that images that depict real human experience of climate change are most persuasive. Getting away from cliched representations is important. Research on the visual communication of climate change is not an exact science and is highly contextual. Most of the research

corpus was conducted on news images, which as the rest of this thesis will discuss, do not translate well to TikTok. Acknowledging that there are many schisms in the field, this project takes the position that images that show the real-world, human tolls of climate change are usually the most emotionally powerful. Surprisingly, despite the failure of news organizations to depict the heat wave with more than "fun in the sun" images (O'Neill et al, 2023), average TikTok users came up with extraordinarily creative ways to represent the oppressive heat.

The networked and highly affective architecture of TikTok assists with the rapid formation and evolution of visual trends. In this sample, we see the continuation of some trends that were in full force prior to the Heat Dome, especially the adaptation of sounds. We also see the formation of new Heat Dome-specific trends.

Figure 5   **Screenshots that depict using the sun to cook food**

Left: a creator attempts to bake cookies on the dashboard of their car. Right: a creator cooks an egg in a frying pan on the pavement as the temperature increases.

"It's so hot you could fry an egg on the pavement". TikTok users took this phrase as a challenge during the heatwave, and some even succeeded in frying the eggs (Figure 5). Others baked cookies or made nachos on car dashboards. Others took screenshots of their weather apps and used TikTok's greenscreen editing feature to superimpose themselves on top of it. One user measured outdoor surfaces with a thermal camera.

Through these videos, users found ways to convey the absurdity of the heatwave that fit within the audiovisual vernaculars of TikTok.

Figure 6   Animals dealing with the heat

Left: Cats lounge in the shade of an apartment, nearly motionless. Right: A farm owner feeds her horses, turkeys and chickens watermelon to hydrate them. She struggles to keep them cool under the heatwave.

Animals appeared frequently in the heat dome subsample (Figure 6). Cats and dogs layed in front of fans and AC units. Owners shared tips about how to keep pets cool, like pressing frozen water bottles against them or wrapping them in a wet towel. In one video, a couple drove their RV to the coast as quickly as possible so they and their dogs can escape the heat. In some videos, owners expressed deep anxiety for their pets who are clearly not behaving normally because of the heat (Figure 7). House pets suffering under the heat symbolized the unbearable conditions of the heatwave as a whole that are otherwise difficult to transmit in a video.

While house pets are common in the sample, farm animals also featured prominently in the heat dome sample. Owners of horses, chickens and cows shared anxiety for their animal's health. These videos are often accompanied by expressions of shock at how unusual the heat was for the Pacific Northwest, but stopped short of connecting it to climate change. The heat dome was most intense further inland, where rural populations reside (Government of Canada, 2023). The prevalence of these videos

hints that even in 2021, TikTok had caught on in rural areas among older-than-Gen Z populations. Wildlife was also represented. The most played video, at 4.9 million views, was a black bear and cubs cooling down in a residential swimming pool.

Figure 7   Screenshots of users' tactics to keep animals cool
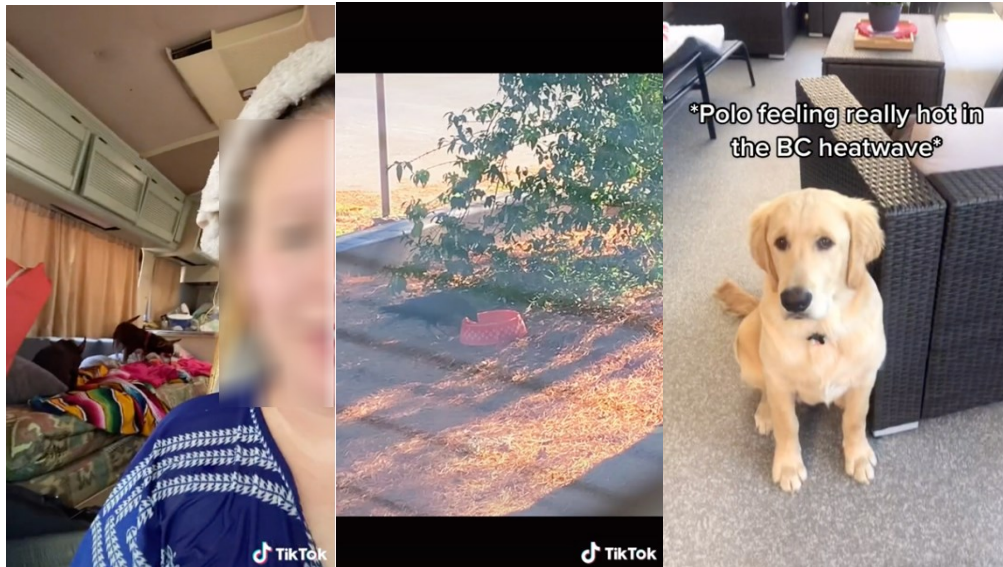
Left: a woman who lives in a camper van struggles to keep her dogs cool. Middle: a creator records exasperated crows drinking from a water bowl they placed outside for them. Right: a lethargic puppy wanders around a home without air conditioning.

The user-generated content in this sample exemplifies a creativity that has eluded legacy news organizations depictions of heat waves and of climate change more generally. Advocacy and activist organizations, who have perhaps more freedom to engage in creative and experimental forms of climate communication, could also learn from these creators. At this point, it is important to mention one huge caveat: almost none of the videos in this sample contextualized the Heat Dome with climate change.

4.4. Diagnosing the Disconnect: Where is the Climate Connection?

Throughout this sample, there is a distinctive lack of connection to the bigger issues of climate change and global warming. Only 11 of the 209 videos tagged their post with "globalwarming" or "climate". There were fewer hashtag or description connections to climate change or global warming than there were to #FordMaverick (18 mentions),

which was a trending hashtag that week after Ford announced its new pickup truck model. This is disconcerting, given that personally experiencing an extreme heat event is more likely than any other type of weather disaster to convince people that climate change is happening now (Egan & Mullin, 2012). Somehow, people are not making this connection, or at least not publicly. The overt connection is important, especially when made by trustworthy public figures such as television meteorologists (Maibach, 2016).

Moreover, in the videos that directly connected climate change to the heat dome, none called for any specific action. In the original codebook for this project, there was a category for the kind of social or political action mentioned in the video, but this code went completely unused. Furthermore, I had also anticipated qualitatively separating videos made by environmental advocacy organizations and activist groups apart from news organizations, but I quickly realized that these groups were completely absent from the sample. This could be a key opportunity for advocates to assert the connection between extreme heat and climate change, and to offer ideas for political action for people to take, but the opportunity was missed. On the other hand, if there is a silver lining, it is that there is also a distinct lack of climate misinformation and skepticism in the Heat Dome sample. TikTok, like other social networks, is not immune to misinformation, and it has been criticized immensely for its content moderation practices during COVID-19, for its pro-anorexia content, and for many other harmful content blind spots, which are often the subject of media firestorms. There is a relatively low amount of misinformation, hateful content, and other forms of outright harmful messaging within any of the three samples in this study. No videos in any sample claimed climate change was not real or made a similarly denialist claim.

TikTok users who personally experienced the Heat Dome did not connect it to climate change in their videos. There are a few reasons this could have happened. Most likely, it is because people prefer to not think about or discuss climate change, even when the believe they have personally experienced it (Norgaard, 2011). Avoiding the realities of climate change is easier than confronting them on a cognitive level, especially when people feel helpless in the face of such a wicked problem. People do not like talking about climate change in their day-to-day lives (Norgaard, 2011). On a network like TikTok that broadcasts users' everyday lives, it is no surprise that this conversational

norm has been carried over. As the creators I interviewed responded in the previous chapter on ambivalence, it's important to match the platform's vernacular practice of *keeping it light* if the creator wants their video to be engaged with.

> Me: How often to you link your videos to larger environmental issues, like climate change or global warming or ecosystem collapse?
>
> Mabel: Maybe not very often, maybe 10 percent of the time, because I find that it's hard to get the average person to go so granular into these things… I think if I was so scientific about everything, I don't think that I could grab the regular everyday audience that I have now.
>
> Me: So you see a benefit in keeping it to what people can do every day, and not connecting everything. Like, "you need to compost because climate change."
>
> Mabel: "Yes, I just talk about little things, and I think through Youtube long format I could probably go deeper into the issue. But on TikTok it's so short that you don't have time to explain everything."

The platform vernacular does not forbid people from talking about climate change. Creators are free to post serious videos about climate change but risk upsetting the vernacular. Users who experienced the heat dome might have connected it to climate change, but not mentioned it, just as people avoid unnecessarily bringing up politics in day-to-day conversation (Norgaard, p. 201). The majority of videos in the Heat Dome sample were created by average users, but this same conversational norm could explain the lack of news content on the site. Vázquez-Herrero et al. (2020) found that serious news content was less popular on TikTok, indicating it might be clashing with the platform vernacular. "Funny and silly" content was more popular. The TikTok vernacular emphasizes everydayness, and this applies to average users, news accounts, and other environmental communicators alike.

Effective environmental communication should emphasize both crisis and care (Pezzullo & Cox, 2021). In Pezzullo and Cox's definition, crisis and care are discrete–

inform them of the crisis, then tell them what they can do about it. On paper, ambivalence looks similar, but it manifests differently. The videos in this sample illustrate people dealing with the Heat Dome and making fun of the situation they found themselves in. Beyond the immediate issues—keeping yourself and your pets cool and hydrated, finding an A/C unit, and so on—the creators in this sample did not explicitly connect climate change to their personal experiences under the Heat Dome. This is likely not a lack of knowledge about climate change. Instead, this could be due to the extension of conversational norms that preclude serious climate conversations from the outside world to TikTok, solidified by algorithmic interventions that subdue topics the network has recognized as controversial.

Despite this, professional climate communicators can learn from the content produced by average users during the Heat Dome. There are more creative and affective ways to visually communicate oppressive heat than photographs of people splashing in water (Shaw, 2021). Climate communication in times of environmental disaster can be lighthearted while still conveying the severity of the situation. Humor is increasingly being experimented with as a more culturally relevant way to communicate climate change to disengaged audiences (Boykoff & Osnes, 2019). With the almost-complete lack of news organizations and advocacy organizations in this sample, there is a void of quality, informed climate communication. However, the establishment of this type of authoritative climate communicator in an information ecology does not guarantee the health of the ecology will improve. As the next chapter will show, news organizations eventually figured out how to make environmental content that receives millions of plays and emanates outward across the imitative network of TikTok. While this could be considered a success for the news organizations in terms of market share, their content strategy ultimately created a more toxic information ecology.

Chapter 5.   Throwing Soup for the Earth: Disruptive Activism and the TikTok News Ecosystem

On Friday October 14, 2022, two young protesters belonging to the anti-fossil fuels activist group Just Stop Oil threw a can of tomato soup at Vincent van Gogh's *Sunflowers* on display at the National Gallery in London. The two protestors glued their hands to the wall below the painting, then one exclaimed to the onlookers:

> "What is worth more, art or life? Is it worth more than food? Worth more than justice? Are you more concerned about the protection of a painting or the protection of our planet and people? The cost of living crisis is part of the cost of oil crisis. Fuel is unaffordable to millions of cold, hungry families. They can't even afford to heat a tin of soup. Meanwhile, crops are failing, millions of people are dying in monsoons, wildfires, and severe drought. We cannot afford new oil and gas. It is going to take everything we know and love." (Phoebe Plummer at the National Gallery in London, 2022).

The entire exchange was recorded by another Just Stop Oil member, and clips of the protest were recorded by museum attendees after the soup was thrown. The activists were arrested shortly after and the museum issued a statement that the painting, which was behind glass, was unharmed, but the frame suffered minor damage (Adams, 2022). The painting was back on display hours later. The two protesters later appeared in court on charges of criminal damages (Capoot, 2022).

The protest made international headlines. The video recording of the protest was quickly picked up by news organizations and published to social media, where it went viral, perhaps because of the bizarre and unexpected nature of the action (Al-Rawi, 2017). At the time of the protest, I was a teaching assistant for an undergraduate course on environmental communication. For several weeks after, "SoupGate" was all my students, mostly Gen Z and big time users of TikTok, wanted to talk about. They grappled with the ethics and efficacy of the protest. Was this a good look for the climate movement? Shouldn't they protest less disruptively? And what does Vincent van Gogh

have to do with any of this? The protest sparked discussions among everyday audiences about what makes for effective climate protest and what does not.

Just Stop Oil describes itself as a "coalition of groups working together to ensure that the government commits to ending all new licenses and consents for the exploration, development and production of fossil fuels in the UK." They have called new extraction developments "genocidal" (*Campaign Background*, n.d.). The coalition was formed in February of 2022. It is non-hierarchical and has no leadership team. Just Stop Oil is known for blocking highways and intersections, and now stages "slow walks" to circumvent new laws enacted to prosecute them for blocking road infrastructure (Dearden, 2023). The coalition has staged flashy protests at public events such as football games and Wimbledon, interrupting by throwing their signature bright orange paint or dust ("Just Stop Oil," 2022). Just Stop Oil protesters have been arrested more than 2,100 times since the organization was founded in 2022 (Barradale, 2023).

The COVID-19 pandemic wreaked havoc on climate activist groups who were no longer able to meet (O'Hagan, 2023), and movements for racial justice in the wake of the murder of George Floyd surged. Emerging from this sabbatical, Just Stop Oil is tactically more aggressive compared to the civil disobedience of groups like Fridays for Future and the Sunrise Movement that have risen in popularity in the past decade. In the case of the group's slow walks, critics often complain that the protests are too disruptive and counterproductive to the environmental movement. The coalition's protests at football matches and art museums attract criticisms about what the site of the protest has to do with the climate movement at all (Romano, 2022). But the assertion that their protests are non sequiturs may actually work in their favor, because the absurdity of throwing bright orange dust at Wimbledon tennis players is guaranteed to attract media attention. Just Stop Oil regularly makes the headlines in UK news coverage, but this protest at the National Gallery was the first and one of their only protests to attract international interest, as illustrated by Google Trends data for worldwide searches and searches from the US (Figure 8). Google Trends data for other countries' interest in "Just Stop Oil" followed a similar pattern to the US graph.

This news story made international headlines and established Just Stop Oil as a major player in the world of environmental activist groups. Seeing the bizarre nature of the story, news organizations jumped at the opportunity to publish. When courting media attention, environmental activist organizations face a double bind: protest tactics that are too mundane or polite risk not attracting any media attention, but tactics that are too disruptive may attract negative attention (McAdam, 2017; D. J. Wang & Piazza, 2016). It is up for debate whether "negative attention" is truly bad, but research has shown that news coverage of environmental activist events are polarizing, and regular people tend to question their efficacy and salience (Corner et al., 2015; Cross et al., 2015; McAdam, 2017; Wang & Piazza, 2016). Watching the TikTok videos in this sample, the Just Stop Oil protestors garnered plenty of negative attention. As the rest of this chapter will show, the remixing culture of TikTok sometimes intensified this negative attention or sometimes subverted the meaning of the protest altogether.

Figure 8   **Google Trends interest in "Just Stop Oil"**
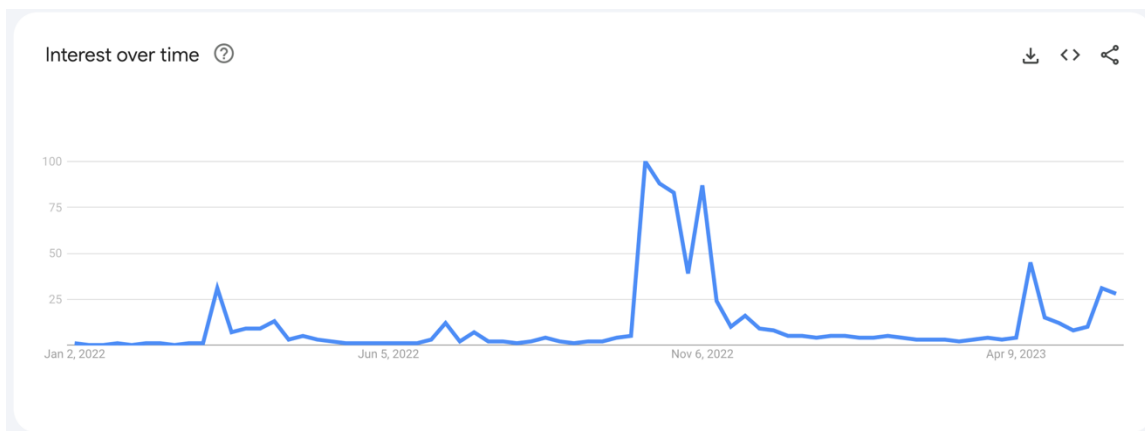
A Google Trends interest graph shows a large spike in search activity immediately after the Just Stop Oil protest.

5.1. Shortcut Content: Sharing the News and Letting Others Explain It

As was elaborated in the last chapter, TikTok's platform vernacular depends on participation in network trends. News organizations sometimes ignore this vernacular by reposting content from their other media streams, which leads to low views and engagement. In this case study, news organizations were the most viewed and engaged-

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with account type. They achieved these numbers by posting raw footage of the protest that was perfectly suited to be remixed by other creators using TikTok's built-in imitation features. By posting this decontextualized video, which I call "shortcut content", they relinquish important journalistic duties and let anyone who wants to provide their own analysis to do so. Average users and a few conservative influencers took up the offer, creating cynical and occasionally toxic videos that targeted the Just Stop Oil protestors and cast doubt on the prospect of environmental change via disruptive protest.

5.1.1. The News is Now Getting Views

Looking at the average number of video plays, comments and shares for the Just Stop Oil sample reveals that news accounts topped the charts, averaging nearly twice the amount that Influencer accounts received, and significantly more than Average accounts (see Table 6). Compared to the Heat Dome sample in which news organizations were essentially non-existent, this looks like success. They figured out how to get views on TikTok. What did news organizations do differently here? What could explain their newfound ability to make content that performs well on TikTok, and how did this affect the ecology of climate content?

Table 6   Average number of Comments+Shares and Plays by Account Type in Just Stop Oil sample

	Comments+Shares	Plays
Average	1965	799775
Influencer	5609	1406462
News	9961	2289914
Nonnews	4521	1393757

Table 7   Details of News Accounts with 3 or more videos occurring across all three case studies

Author nickname	Author signature	Author verified	Author videos #	Author followers #	# of videos in sample
Yahoo News	🧑 Yes, we still exist. 📰 News & politics 💜 DMs open 👇 NEWS UPDATES	TRUE	3906	2,200,000	8
NowThis Earth	Watch Can It Save the Planet? 👇	TRUE	856	801,400	7
Yahoo Finance	Yes, we still exist 😂 & we're the biggest business platform on the planet. 🌍	TRUE	1649	360,500	6
TalkTV	Watch TalkTV on Sky 526, Virgin Media 606, Freeview 237 and Freesat 217	FALSE	388	168,500	5
Sky News	For more on the latest stories download the Sky News app ⬇️	TRUE	2618	3,000,000	4
Brut.	Stories, unfiltered. Want more? Click below. 👇 👇 👇	TRUE	1874	1,800,000	3
itvnews	On Instagram? Follow Here's The Story from ITV News – link in bio ⬇️	TRUE	1848	1,400,000	3
nowthis	Subscribe to our newsletter 👇	TRUE	1876	5,000,000	3
UnderTheDeskNews	The Nice Side of #NewsTok 🤓 Host of V Interesting Pod v@palettemgmt.com	TRUE	1475	2,700,000	3
VICE World News	🌍 🌍 🌍 Find out what's really happening in the world.	TRUE	643	2,500,000	3

Most of these videos were found in the Just Stop Oil sample, and fewer were found in the Inflation Reduction Act Sample.

News videos by Yahoo and NowThis occur more frequently than any other publisher. Lumping Yahoo News together with Yahoo Finance, the news and entertainment company posted 16% of all news videos across the three subsamples. NowThis' main account and the NowThis Earth account combined account for 10% of all news videos. Three UK-based news organizations rank highly, primarily from English coverage of the Just Stop Oil protest (non-English sources were not analyzed, although presumably there would be a high number of non-English European coverage). Other notable news organizations present in the sample include ABCnews (1 video), CBS Morning & CBS News (3 videos combined), The Weather Channel (1 video), and the Washington Post (2 videos). All news organizations with videos occurring most frequently in the sample were verified accounts except for TalkTV.

Yahoo!'s resurgence as a news source on TikTok is notable, given the company's widely publicized slow fall from grace (Frick, 2016). In a self-deprecating account biography section, they remind people "yes, we still exist". Yahoo! News has a climate change section on their website and covers environmental issues frequently on TikTok. NowThis News was purchased by Vox Media in 2022. NowThis gained prominence as an internet-native video publisher on Facebook in 2015, later moving to other sites (Kalogeropoulos et al., 2016). Both news organizations were early adopters of TikTok. In this sample, established digital news organizations saw wide circulation. British publications are well represented in the Just Stop Oil sample because the protest happened in London. Legacy news organizations (as opposed to digital-first organizations) are not as well represented but did occasionally have individual videos represented in the sample. Many news organizations are garnering millions of followers and post multiple videos per day. Yahoo News, excluding the Yahoo Finance account, has averaged posting about three videos per day since they joined TikTok. These news organizations are figuring out a way to make TikTok work for them. But how?

5.1.2. But at What Cost? Raw footage and Decontextualization

Of the top ten most played videos in the sample, six are *only* reposts of the raw footage without any context. There were several original videos recorded at the site of the

protest—one from fellow Just Stop Oil protestors, and several from onlookers. They are from different angles, but textually these videos are the same. Novara Media, a UK-based left-wing digital news organization, was the first to post the video. Being the first mover, their video received more plays than any other in the sample, despite the news organization having a tiny fraction of the followers of bigger news organizations in the sample. NowThis, Yahoo, the Guardian, and other news organizations posted the raw footage to their accounts within hours of Novara's post. At the bare minimum, they each captioned the video with a basic headline. Yahoo! News' repost of the raw footage adds only the caption "Climate activists vandalize $84.2M Van Gogh painting". Novara Media reaped the benefits of being the first to post the raw footage.

Important details were left out of these videos completely. Many of these videos did not identify that the protestors represented Just Stop Oil. Almost none mentioned that the painting was not damaged. There was an opportunity to do this in both the hard-coded text in the video, the caption of the video, or even with sound, but few did. This context is important. News needs to be conveyed with at least some of the context readers need to understand the situation (*News Values and Principles*, n.d.). This is especially necessary for breaking news stories, which viewers are less likely to try to verify themselves (Edgerly and Vraga, 2020). Without context, the protestors' actions are unconscionable. Commentators to the videos strongly disapproved and expressed their hatred of the protestors. The top comment on one video read "Stupid kids". This fits into a much longer trend against disruptive protest as an acceptable means to accomplish change, especially within the environmental movement (DeLuca, 1999; McAdam, 2017; D. J. Wang & Piazza, 2016).

A few videos in the sample did contextualize the protest. Vice News and NowThis followed up their raw footage with separate videos of an interview with Phoebe Plummer, the activist behind the action. In them, Phoebe explained that they knew the painting was behind glass and that their intention was to spark a conversation. Comments on these videos were significantly more accepting of the protest. The protestors went from "stupid kids" to "brave activists". However, these videos were published days after the protest and received a fraction of the views that the raw footage received.

Figure 9   Screenshots of videos containing protest raw footage posted by news organizations
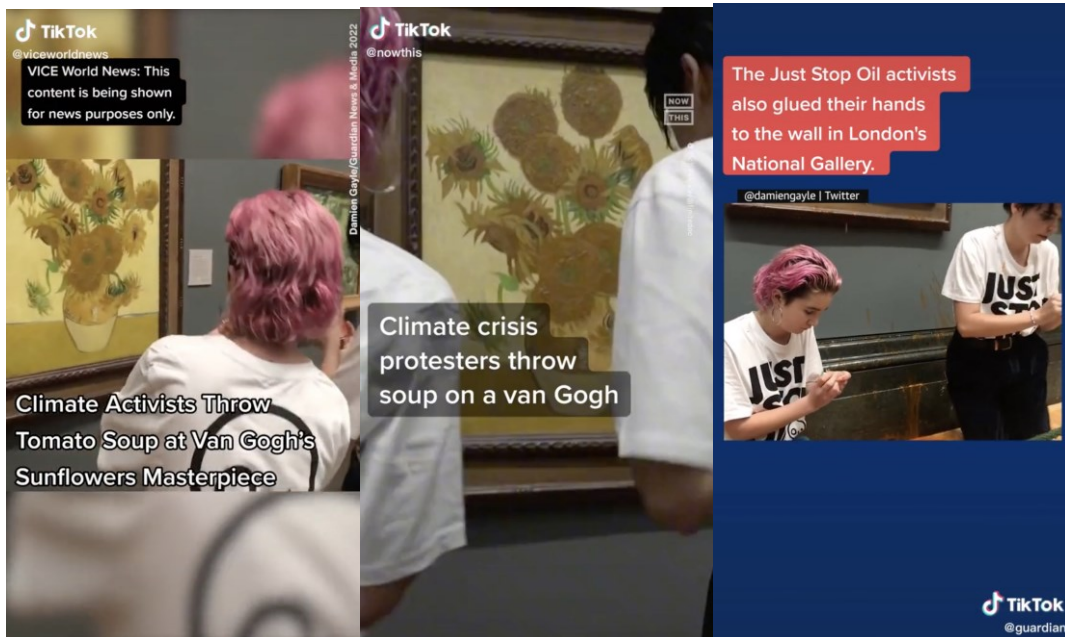
Left: Raw footage posted by Vice News. Middle: Raw footage posted by NowThis. Right: Raw fooage posted by the Guardian. All look essentially the same, with minimal added context.

Someone critical of the journalistic merit of news organizations like Yahoo! might argue that they have always fallen short of the norms of good news reporting, but that is beside the point. A bare minimum amount of contextualization would help prevent unnecessary hate from being directed toward environmental protestors. Comparing Yahoo's coverage of the story on their website to their TikTok video illustrates the difference.

Table 8   **Comparison of transcripts of Yahoo! News' TikTok video versus an excerpt from a story published on news.yahoo.com**

Yahoo! TikTok video transcript and caption	Yahoo! News online text coverage
Caption: "Climate activists vandalize $84.2M Van Gogh painting" Transcript [protesters speaking, subtitled]: "Are you more concerned about the protection of a painting? Or the protection of our planet and people? Fuel is unaffordable to millions of cold, hungry families. They can't even afford to heat a tin of soup."	London — Environmental protesters on Friday threw tomato soup over Vincent van Gogh's "Sunflowers" painting at the National Gallery in central London, videos posted on social media showed. Just Stop Oil said in a statement that two protesters threw two cans of Heinz Tomato soup over the painting at 11:00 a.m. (6 a.m. Eastern) to demand that the U.K. government halt all new oil and gas projects. In a tweet, the activist group blamed the current economic turmoil and the climate crisis facing the world on fossil fuels, asking: "Is art worth more than life? More than food?" London's Metropolitan Police said officers arrested the two protestors for criminal damage and aggravated trespass after they "threw a substance over a painting" at the gallery on London's Trafalgar Square. BBC News said the the [sic] gallery had confirmed that the painting was covered by class, so it wasn't damaged." [article continues]

The story posted on Yahoo's website gives important context like the name of the activists' organization, that they were arrested and charged, and that the painting was not damaged (*Eco-Activists Throw Soup on van Gogh's "Sunflowers" in London*, 2022). The TikTok video forgoes the inverted pyramid for brevity (Table 8). As I'll show in the sections following this, all three of these facts were not available to users remixing the raw footage, which resulted in multitudes of inaccuracies and instances of borderline misinformation spreading. This supports Kalogeropoulos et al.'s (2016) finding that the majority of online breaking news videos on Facebook were of the main actor in the story and nothing else, and only a small portion of videos featured an actual journalist in the video or giving narration. However, Kalogeropoulos et al.'s "shocking" finding is worsened on TikTok because the duty of explaining these contextless primary source news videos is taken up by non-journalist creators. As the next section will show, by

posting only raw footage, news organizations let TikTok users write the news story. This is, of course, not entirely the fault of news organizations—the architecture of TikTok encourages virality via imitation, and news platforms are trying to adapt in the way they know how. They are only trying to earn visibility. There is an opportunity here, however, for environmental advocacy organizations and activists to leverage this bad practice to insert their own messaging and context. This would require the organizations to be quick on the draw, as some of the most viewed imitations of the raw footage were posted in the hours following the story breaking.

Creators' perceptions of how recommender algorithms work can influence the content they produce (Bishop, 2019), and that is clearly shown here through the similarity of content across many different news organizations. Decontextualized raw footage is commonly used by news organizations, and it was the most engaged-with content in this sample. According to TikTok's content moderation practices, breaking news stories are made For You feed-ineligible (*Community Guidelines*, n.d.) which means it will not be recommended by the site's algorithm. But given the millions of views these videos received; this doesn't seem to be enforced. It is out of the scope of this project to interrogate these channels much outside their coverage of my three chosen case studies, but future projects could examine news organizations' (over)use of raw footage. Correlation between engagement analytics and raw footage should also be explored. The most important contribution of this chapter is the assertion that news organizations post raw footage lacking the necessary context, which is then taken up by TikTok users who layer their own commentary.

5.1.3. Emergent Imitation Logics

After the raw footage, the second most popular kind of content were Duets, Stitches, and other videos that remixed the raw footage into something else. These videos almost always include the primary source footage, with more substantial content appended onto the original. Only two videos in the top ten most-engaged list do not include any original footage of the protesters throwing the soup. Zulli & Zulli (2021) theorized "imitation publics" to describe the content-driven, highly mimetic form of

sociality formed by TikTok's architecture. Creators piggyback on trending videos to achieve their own popularity on the network. Conversations unfold on top of each other using TikTok's built-in editing effects. Remixed videos overwrite old messages said in this multimodal conversation. The primary source video undergoes an evolutionary process, shedding meanings and gaining new ones as it travels across the network.

Raw footage can be remixed through TikTok's built-in editing features or remixed by downloading the video and manually reuploading it. When a video is imitated using the built-in features, the app creates a link for viewers to follow the conversation back to the original. With either method, a play is logged and a download or remix of the video is recorded on the platform network graph, each contributing to its virality. The primary source video's analytics are then compounded as more and more users remix and repost the content. The algorithm recognizes this engagement and pushes it into more feeds. Raw footage is so popular because of its 'remixability'. The lack of context and alluring polysemy contributes to its remixability. Here, we see an emerging logic of imitation. Shortcut videos act as a blank slate, ready for analysis or alternative meanings to be applied by those doing the remixing. News organizations have shown their understanding of the mimetic affordances of TikTok. This type of content takes a shortcut to virality while ceding the journalistic practices of contextualization, explanation, and analysis to other TikTok creators. The increased viewership helps news organizations build brand identity, although primarily as a source of raw material rather than a site of thorough news reporting.

Figure 10   Comparison of raw footage and footage remixed with Duet
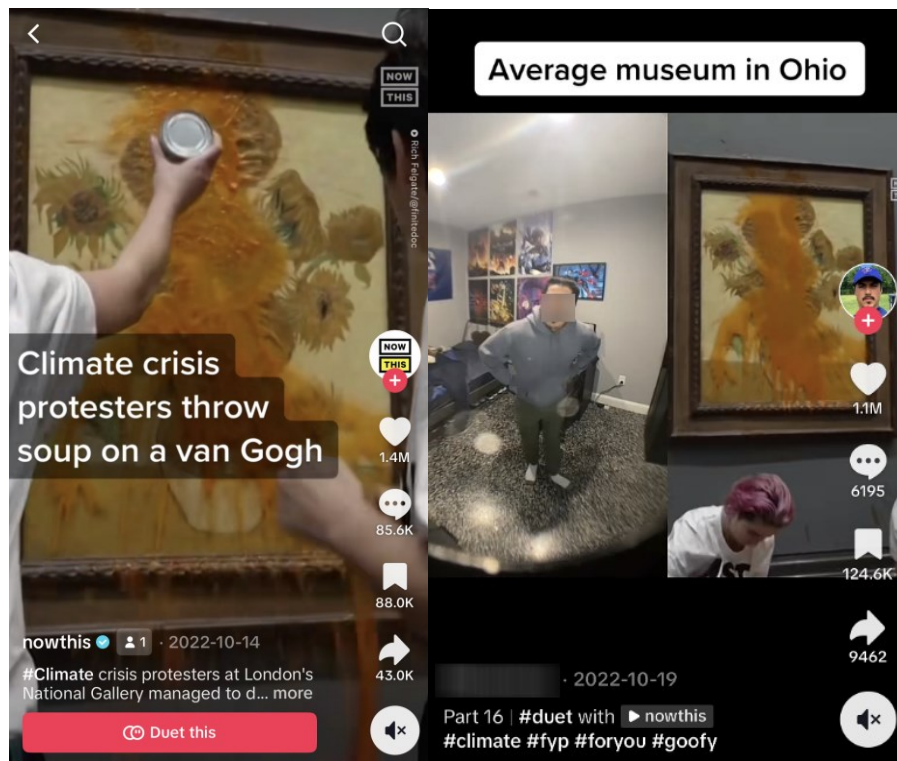
Left: A tempting red "Duet this" button rests at the bottom of the screen below NowThis's copy of the Just Stop Oil primary source video. Right: A user-created Duet of NowThis' video with nearly as many likes as the original.

Videos reposted via TikTok's built-in imitation features are more likely to be placed on users' FYf and to start trending. There is a technique to making videos that are likely to be taken up by people remixing and reposting content. Creators will often pose questions with the intention that their question will be Stitched into a response by another user. These videos will often be captioned with the webspeak "*Stitch incoming:*". Sometimes users will Stitch their video onto another to disagree or to call out another user. People stitch their analyses and quick, but often hateful retorts to these viral videos, which amplifies both videos in users' feeds (Harwell & Lorenz, 2022). In a Duet, the raw footage will play alongside the user's video (Figure 10). As the name suggests, it was originally intended to support users performing karaoke back in the days of Musical.ly. Participating in trends and imitating videos is more than speaking the vernacular, it is an infrastructural network logic. Posting an original video in a way that practically *asks* for others to remix it almost assures increased engagement and viewership, and it appears as if Yahoo!, NowThis and other news organizations have noticed this and are taking

advantage to boost their analytics. Maintaining ambivalence is important here, because a video with too much analysis would not be a good candidate for remixing. This type of video is designed to be remixed—it's a prompt, not a statement. They are skipping the reverse-pyramid, purposefully forgoing context so their video can be remixed. Here, we see what van Dijck and Poell (2013) refer to as social media logics of popularity and connectivity clashing with typical news media logics. Journalistic values, like providing the necessary facts, maintaining accuracy, identifying sources (Associated Press, n.d.) are cast aside in favor of appealing to the social media site's logics. This is contributing to an information ecology that lacks good information about climate change and environmental activism. This logic of imitation runs counter to practices of effective climate communication and news reporting.

Many of the videos made using the raw footage are harmless or ambivalent. The multimodality of TikTok is invoked in one trend, where creators lip-synched to a person in the background sheepishly shouting for "security!" after the soup was thrown. That soundbite was imitated by twelve influencers and average creators in the sample. These videos do not indicate any positionality, positive or negative, about the validity or efficacy of the protest action or about the environmental movement. However, they propel the decontextualized content forward, even further removing them from their original status as a news object. Through this imitation, they disarm the protestors, while carrying the decontextualized news events to other audiences. As the next section will show, ambivalence is a best-case scenario for shortcut content.

5.2. Critiquing Activism; Cultivating Cynicism

News stories about climate change, climate politics, and climate activism often tend to result in cynicism and dismissal from readers and viewers (Corner et al., 2015; Cross et al., 2015). There is a dominant social imaginary that climate change is an unsolvable issue, which often coincides or conflicts with popular imaginaries about how social and political change is achieved. Spurred by the perceived immovability of polluting corporations and capitalist waste, climate activists occasionally turn from peaceful climate marches to more disruptive actions, like blocking roadways, painting

buildings, or, in this case study, throwing soup at famous artwork. Disruptive protest actions run the risk of turning-off supporters of a social movement (Wang & Piazza, 2016), but may be necessary to command attention from a wider audience. Set against the backdrop of an increasingly non-disruptive and non-violent climate movement—a far cry from the more radical and destructive direct action of groups like Earth First! Or Greenpeace of the 1970s (DeLuca, 1999)—the contemporary network of global climate activist organizations has struggled to coalesce around an effective strategy (McAdam, 2017). Although Just Stop Oil's protest was not at all unprecedented in a historical context, it did represent a revival of the high-profile, destructive protest action that had subsided with the rise of non-violent climate organizations like Fridays for Future and the Sunrise Movement. This was an important test of how audiences respond to this type of protest in the year 2022. The extensive levels of climate cynicism that come through in this sample signals that it remains contentious. More consequentially, it illustrates the loss of context that happens when news organizations only post raw footage. Such disruptive protests rely on audiences receiving additional information to rationalize and justify their acts. Without the extra information that would be included in any quality news story—*why the protesters are doing this, the fact that the painting was protected by glass and that the protesters knew this in advance*—climate cynicism runs wild on the platform. Moreover, the small bits of context that news organizations occasionally included in the captions probably worsened the reaction of viewers. Yahoo! News used the word "vandalized" to describe the protest, and several others only added that the protestors were arrested. The responses from other creators who used Stitch, Duet, and other imitation features illustrate the collective feeling of anger that resulted from the news clip, like this creator shows us:

> "bro this is exactly why everyone fucking hates activists. Stop throwing shit at paintings!!! "but it's for the awareness!" awareness of what dawg?? Global warming?? We're very aware. Every day we go out there it's hot. Stupid. Leave the galleries alone man, DAMN."

Videos made in response to the protest ranged from ambivalent to furious. Of the top ten most-played videos in the sample, four were responses that used the remixing

features of TikTok. Two of these appeared to take the visual language of conservative talk shows—seated at a desk, and speaking directly to the camera using what seemed to be a scripted or semi-scripted dialogue. They denounced the protestors and the environmental movement. The other two did not engage with the protestors' climate action at all. Instead, they imitated the voice of a museum patron in the background awkwardly shouting for "security!", thus sidestepping any environmental commentary, and potentially diminishing the "news-ness" of the story (Edgerly and Vraga, 2020). The majority of videos refer to the actions of the protesters as "throwing soup", but several call it vandalism. Some videos claim the protesters "destroyed" the painting. This interpretation was anticipated by the protesters (Quiroz, 2022), and was no doubt partially or fully responsible for the video going viral. Seeing the video without already knowing it was protected by glass, as most videos failed to mention, it's reasonable to believe the painting would be damaged. One creator, in shock, explained how he saw the painting for the first time only hours "before it was possibly ruined forever". The talk show-style conservative content creators pulled no punches, occasionally quipping misogynistic comments and generalizing the activists' actions to the whole of the environmental movement. One of these creators, understanding the painting was protected by glass, still called the protestors "the dumbest people of all time.":

> "how would this help the climate movement? They didn't think this through, because the painting had glass over it, which meant the tomato soup did nothing at all"

Some creators point out their perceived hypocrisy by highlighting the waste of the single can of soup. Ad hominem insults, sometimes attacking the gender presentation of the protesters, are present throughout the sample. Adversarial framing is common in climate communication (Knight & Greenberg, 2011). These responses were most often grafted directly onto video footage of the protest using TikTok's Stitch editing feature. A few seconds' footage of throwing the soup at the painting is enough to catch a viewer's attention, which is then followed by the TikTok user's reaction. Most were Stitched using primary source footage from Novara Media, NowThis or Yahoo! News. There were very few videos that used TikTok's imitation production features to append positive or

contextualizing pieces of information. One user, who received about average levels of plays and engagement, justified the protest by claiming that anything less disruptive would not go viral on TikTok like this video had.

The videos that claimed the painting had been destroyed represented the most salient example of misinformation across any of the samples. It is not directly harmful in the same way that the denial of anthropogenic climate change is, or in the same way that anti-COVID-19 vaccine misinformation is, but nonetheless could have detrimental effects to TikTok users' impressions of the climate movement. But this is a difficult challenge in terms of content moderation. Is it technically misinformation? Would the integration of a fact-checking service be able to handle this? The National Gallery took a few hours to clarify that the painting had not been damaged, so this would not have been immediately verifiable. Twitter experimented with a re-contextualization feature. In the above example, a Tweet that is similarly decontextualized to the TikToks in this sample was appended with the important note that the "picture was unscathed and is already back on display". The feature is far from foolproof, and fact-checking is a "band-aid" solution to fight misinformation that is costly and scales poorly (Tambini, 2020), but it does signal that the network is thinking about how to solve the issue.

Figure 11   Comparison of Twitter/X contextualization feature and raw footage on TikTok
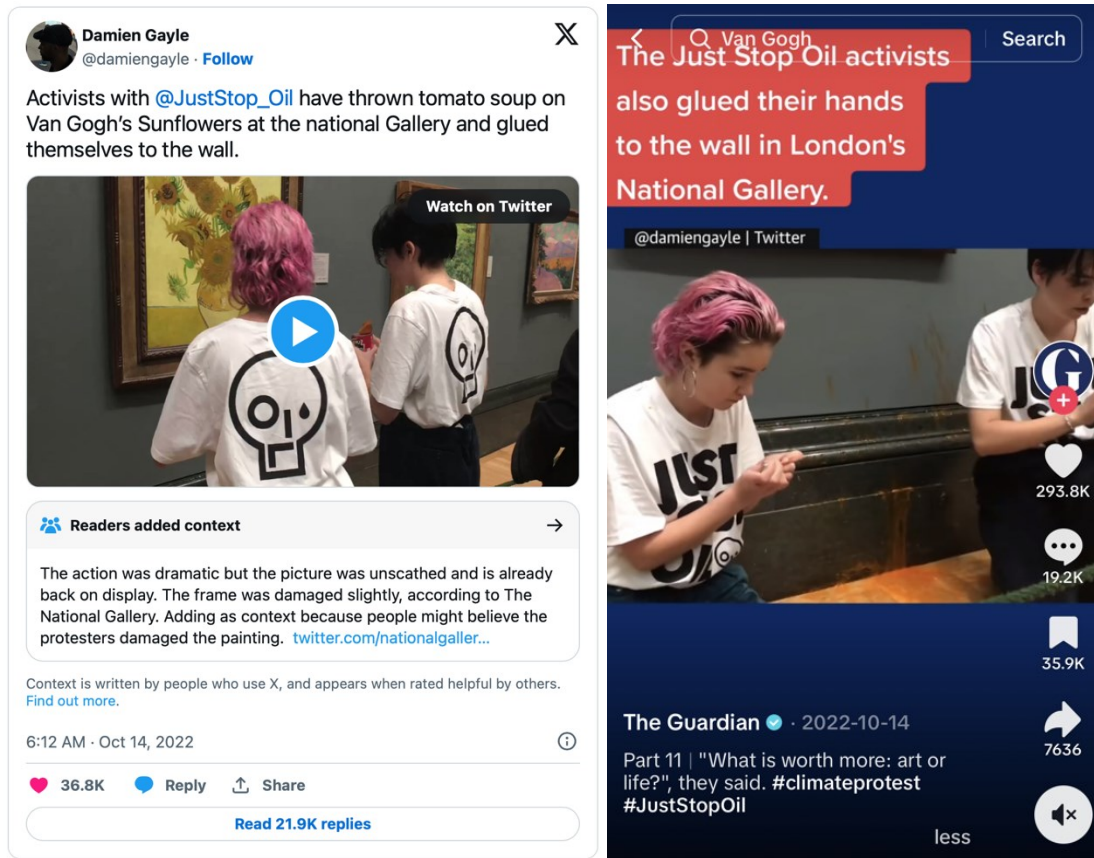
Left: Screenshot of a post about the protest from Twitter/X, with context added by readers below the post. Right: a screenshot of a TikTok video of the same protest posted by The Guardian, without any added context. The TikTok video on the right is representative of what most videos posted by news organizations in this sample looked like, with little or no context added in the description of the video, and the headline written as a caption overlaid on top of the video.

Without the context of the protest, of course people are worried about the fate of the painting and are upset at the perpetrators. With the extra tidbit of context that the painting was not damaged, journalists found people were more sympathetic to the action. The Guardian reported on one woman, who "initially condemned the action but changed her mind when she learned the painting was unlikely to have been permanently damaged." (Gayle, 2022). There is no journalistic elaboration on how the protesters think this may advance the environmental movement, that even people making videos denouncing the action pre-emptively say they support. Just Stop Oil's website explains their theory of change:

"Extinction Rebellion and Insulate Britain have demonstrated that Civil Disobedience works. They also show that we need to do significantly more to stop the greatest crime against humanity. That's why we are moving into Civil Resistance — it's no longer about a single project or campaign, it's about resisting a [UK] Government that is harming us, our freedoms, rights and future, and making them work for us." (*Campaign Background*, n.d.)

They go on to explain that Civil Resistance differs from disobedience in that it includes strikes, boycotts, mass protests and disruption. Just Stop Oil has an active TikTok account to promote footage from their protests, but curiously, the video of the protestors throwing soup is not on the page. Just Stop Oil tends to engage in more radical action than other more mainstream environmental action organizations. Like the Sunrise Movement, Greenpeace, Extinction Rebellion and other direction action organizations, Just Stop Oil subscribes to the idea that the actions of individuals alone are not enough to stop climate change, and greater political change needs to happen. This is not a revolutionary position for organizations within a social movement to take by any means, but it comes into tension with a popular neoliberal narrative supported by corporations and governments with vested interest in delaying responses to climate change. The narrative of individual behavior change as means to tackle climate change—a position notably supported by oil companies and that fits comfortably within neoliberal sociopolitical systems of the western world—has become prolific (Maniates, 2001). Through the media, individuals are sold on the idea that environmental problems would work themselves out if they only recycled their waste, took shorter showers, and drove hybrid cars. This tension plays out in many TikTok videos stitched onto the initial protest video. One said:

"Can we stop this?" "One of the activists said, if you can call them that,…" "Look, if you wanna make a change in this world, it's done from the inside of a system."

However, only the latter theory of change was widely circulated. While many critical environmental communicators would vehemently disagree with this take, it is clearly within their rights to express their opinion about how environmental change is

achieved. Bad advice is not misinformation, but it is extraordinarily common in environmental discourses on TikTok and worsened by the network's imitation logics. This problem can be more eloquently elaborated if we shift away from a misinformation mindset and acknowledge that assessing the merits of information is a much more qualitative process. Phillips & Milner (2021) describe a pyramid of actors working within an online network to spread polluted information, knowingly or unknowingly. At the top of the pyramid are actors spreading disinformation with the intent to do harm, and at the bottom are well-intentioned everyday users who unintentionally spread this polluted information by interacting with it, even if they reject the information on its merits. This cuts to the core of TikTok's information ecology, at least within environmental discourses: relatively few emitters of highly toxic disinformation (in fact, in the classic climate-denial sense, there were none found in this sample), but there are many users circulating low-quality, decontextualized information. Decontextualization is not unique to TikTok, but the network's logic of imitation incentivizes it. This interrupts the mediation of disruptive environmental protest as a valid course of action, and instead paints the activists as radicals, undermining the movement.

Only changes to the infrastructure can address the several root causes that were uncovered in this chapter. The most toxic root cause, and perhaps the most important finding in this thesis, is a logic of imitation that incentivizes news organizations to post shortcut content—raw footage of breaking news stories without context. As I have shown, this type of content is particularly harmful to environmental activists. Without the necessary context, activist narratives are quickly subverted by uninformed or adversarial actors, and the discourse degrades rapidly from there. As the next chapter will show, there are some TikTok creators who resist the urge to post shortcut content and instead contribute to creating a better information ecology for climate crisis communication. TikTok, however, does not make it easy to successfully circulate "good" environmental content. Creators must work around the affordances of the network to effectively communicate about climate crisis. As I will argue in the next chapter, popular independent news creators on TikTok are producing content that meets the standards of legacy news media while speaking the platform vernacular fluently. They seem to be producing mostly "good" information even without the formal training. Even more

impressively, their content is circulating widely on the platform, receiving viewership that news organizations have only been able to achieve using shortcut content.

Chapter 6.   Covering Climate Policy from the Outside: Legitimizing News Influencers

Don't mind the misnomer—this is the most money the US has ever spent to address climate change, and the bill's proponents made sure to center this fact in messaging the bill. The name "Inflation Reduction Act" was chosen because, at the time, inflation was the average American's top concern (Roston & Eckhouse, 2022). The top of the White House's webpage for the bill reads:

> "On August 16, 2022, President Biden signed the Inflation Reduction Act into law, marking the most significant action Congress has taken on clean energy and climate change in the nation's history." (*Inflation Reduction Act Guidebook*, n.d.)

The bill had a long and winding path through congress, after being spun off from the bill President Biden campaigned on in 2020, Build Back Better. With Democrats only holding a 51-50 majority in the Senate, it was held up several times by moderate Democratic Senator Joe Manchin (Zhou, 2022). The bill was considered dead (Tankersley et al., 2022), until Manchin agreed to most of the original terms of the deal in a surprise announcement with Senate Majority Leader Chuck Schumer (Everett, 2022). The bill's environmental provisions are extensive, including massive spending on solar panel and battery manufacturing, clean energy tax credits, residential electrification programs, air pollution reduction programs, and sustainable agriculture programs (*What the Inflation Reduction Act Means for Climate*, 2022). The bill also set a cap on prescription drug prices and a corporate minimum tax rate (Mason & Holland, 2022). As with any policy success, Democrats took a victory lap of press conferences in the months after that emphasized the bill's climate spending, even as Americans continued to worry more about economic inflation and the cost-of-living crisis (Mason & Holland, 2022). The Inflation Reduction Act was covered so much on television news networks that it significantly influenced the average amount of programming television news channels spent discussing climate change for the entire year (MacDonald et al., 2022).

As legacy news organizations dissected and explained the bill, and the conservative news sphere critiqued its ability to actually reduce inflation (B. Gillespie, 2023), amateur TikTok journalists were also busy reporting on the bill. "Amateur" does not do their work justice, because as this chapter will show, their reporting is well researched and communicated. However, there is a body of literature that contrasts "amateur" journalists, citizen journalists, and other alternative media against "professional" sources (Allgaier, 2019; Atton, 2009). Alternative media practitioners typically have little or no training in journalism, and often enter the field as activists with affinity for a particular issue (Atton, 2009). This is true for most members of EcoTok, who often use their platforms for environmental activism, and many of whom are still in school. When reporting on news, TikTok content creators still lean into their personal brand. "Alternative journalism" tends to imply a level of crowdsourced reporting in the academic literature (Pearce & Rodgers, 2020; Poell & Borra, 2012), rather than the persona-based reporting that is common in this sample, which is more reflective of the "one-to-many" dynamic of traditional news reporting (Pearce and Rodgers, 2020). Disregarding terminological issues, this set of journalist-content creators have found great success as effective environmental communicators on TikTok where most legacy news organizations have failed to do so.

News influencer videos are persona-driven, highly accessible, and show they understand the TikTok vernacular. A handful of legacy media organizations have mimicked this type of news coverage and are also finding success. However, for every success story, there are many failures. On the surface, it's easy to write these failures off as the old guard of news editors misunderstanding what the young TikTok audience wants, but the reason is much more complex. TikTok, and social media sites more generally, are increasingly moving away from news content. Through its design choices, TikTok has upset a decade-long mutually beneficial relationship between social media networks as "traffic machines" (Petre, 2015) and legacy news organizations as user-generated content juggernauts. I end this chapter by discussing how legacy news organizations and influencers alike work around TikTok's affordances that restrict effective news reporting.

6.1. Influencers in the White House: Professionalization of News Content Creators

6.1.1. Legitimizing News Content Creators

As the Inflation Reduction Act wound through Congress, news content creators tracked its progress, performed analyses, and offered their thoughts on its politics. V Spehar (@UnderTheDeskNews) produced some of the most engaged-with and most viewed videos in this sample. Spehar was an early adopter of TikTok and built their following on the platform. Spehar, who records all their videos laying on the carpet below their desk (thus the name), produced a series of Q&A-style videos about the Act. They speak directly to the camera in a conversational tone, wearing one earbud. At times, they look down at their notes to keep them on track. Spehar is honest about what they don't know: "*so these producers that have been doing fossil fuels will get incentives for improving efficiency and developing carbon capture solutions. I don't know what that is but it sounds nice*." Perhaps this part is slightly performative, but the overall effect appears as if a friend is personally explaining the news to you over FaceTime. Shortly after, Spehar reaffirms their expertise, justifying why they are qualified to report on this news:

> "Please leave comments, I will try to answer them to the best of my ability. I have been like swimming in this stuff for like a month now. I wanna get you the most accurate and up to date information so that you can go forward with confidence knowing that we're saying and doing the right things."

Spehar has mastered this type of identity and tone straddling—simultaneously giving off the ethos of a network television news reporter while still coming across as relatable. Spehar's content epitomizes the type of accessible, down-to-earth style reporting that my interviewees emphasized as being typical for edutainment and news content on TikTok:

> "If I'm reading an article from a peer-reviewed journal, I will only post the citations if people ask me for them. I just pull out the important factors of it, and write those down. I'm like, how can I take out all the

jargon and just make this make sense because some things get very confusing. I like to use a lot of accessible documents, so I'll use a mix of peer reviewed journals, and then accessible news articles that talk about the same thing, so that people can access it without that paywall. I'll make sure to vet it out, and be like, okay, does this line up with what I've learned in class? Is this proper information? And then put that out there." (Gabrielle)

This is not just an appearance, or limited to their delivery, either. Gabrielle, Spehar and other news and environmental content creators actively engage with their audience in the comments of their videos, and often answer questions left in the comments in subsequent videos (Figure 12). Their videos about the Inflation Reduction Act were widely circulated. Three of Spehar's videos were represented in the sample, which averaged hundreds of thousands of views. These numbers demonstrate that this is a medium that can support news and policy analysis and that there is an audience for this kind of content.

Figure 12   Screenshots of a @UnderTheDeskNews video and its comments section
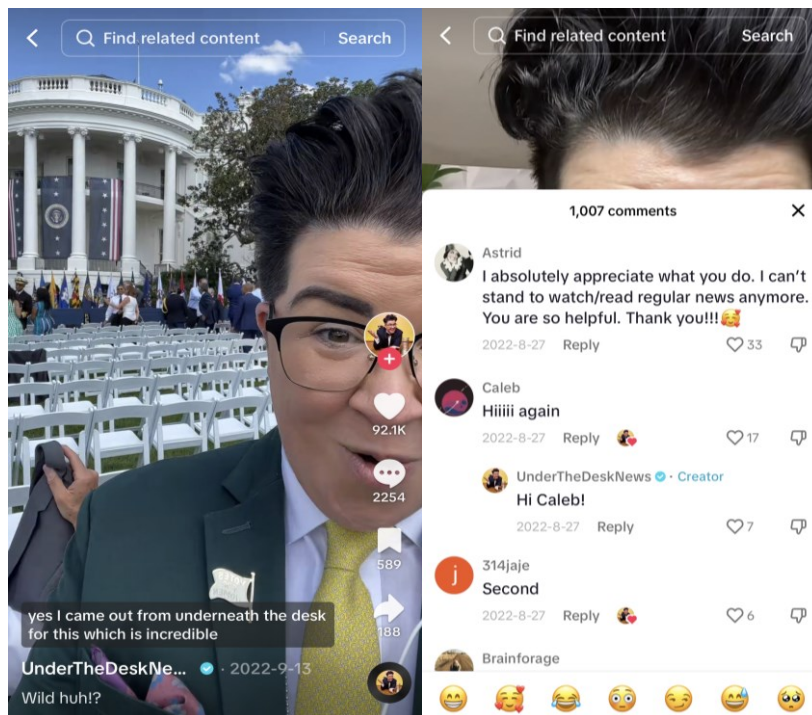
Left: A screenshot of a video posted by V. Spehar (@UnderTheDeskNews) from the White House lawn, where the Biden administration held the influencer press conference. Right: A screenshot of the comments section from one of Spehar's videos included in the sample shows appreciative comments and Spehar interacting with fans.

A few weeks after the Inflation Reduction Act had passed, Spehar and a handful of other popular TikTok news creators were invited to attend a special "creator briefing" at the White House (Sprunt, 2022). The briefing was the first of its kind. At the White House, they were encouraged to interact with members of the Biden administration and legislators and record as they normally would when making news content for TikTok. In one video, Spehar remarked about how unbelievable it was for them to be at the White House, reporting on the news. They later discussed feeling out of place with another reporter: "Legacy media had a good time making a joke about TikTokers being invited to a White House Briefing," Spehar said in an interview with NPR. "It just showed how out of touch people are with what the current state of communication is for young people." (As quoted in Sprunt, 2022). Following the in-person event on the White House lawn, a larger group of internet creators were invited to attend a press briefing over Zoom following the in-person briefing, including one creator interviewed for this project.

> "[Members of the White House] were like: 'people are more receptive to receiving the information from you all than receiving it from us. So here's the information, please go make videos on it.'" (Gabrielle)

Videos created by influencers in this sample average about 1 minute long, which is significantly longer than TikTok videos in the other samples and a sign that TikTok moving up the maximum duration might indeed be doing good things to the information ecology. Most videos were self-contained, almost never directing people to go off-platform for more information. By comparison, it is common practice for legacy news organizations on TikTok to only post a teaser of the story and end their videos with something along the lines of "*for more information visit our homepage*". There were very few instances of inaccurate reporting in the influencers' content, and most videos included a substantial amount of analysis, rather than providing only the facts without context. This may be surprising, given that many news content creators do not have formal training in journalism.

Regardless of their theoretical capacity to match the standards of de jure news reporters, the Biden administration recognized V Spehar and other news content creators as figures who can speak to a young audience that might miss their strategic messaging

on other channels. Similarly, other campaigning US politicians have ventured onto the platform to court difficult-to-target Gen Z voters, with mixed results (Ali, 2022). There are reports that the administration plans to make the influencer press briefing permanent, with dedicated in-person and online spaces to attend (Cai, 2023), perhaps indicating this trial run was successful. Governments and politicians are increasingly relying on influencers for publicity, while independent news content creators are looking for legitimacy, cultivating a mutually beneficial relationship (Edwards, 2023). In the near term, this could mean legacy news organizations are finding themselves in competition with news influencers. In the far future, this relationship could threaten legacy news organizations' access to official press briefings. Access to White House press briefings will help legitimize these content creators as reputable sources for news and position them more squarely as true competitors to legacy news organizations.

This formalization could challenge the hegemony of legacy news media organizations. TikTok news content creators garnered and sustained enough attention to earn a seat at the table for this negotiation, which complicates the platform-organization negotiation process that Poell, Nieborg & Duffy (2021) described. Legacy news organizations are not dependent on TikTok to the same extent that they depend on Twitter and Facebook, as was shown in the previous section. As these creators and as legacy news organizations like the Washington Post have shown, TikTok should be used for building news brands, and not as a web traffic generator. The site has a higher cost of content production because it requires more labor to create content suitable for the social network. This is a potentially riskier investment and comes without clear, measurable analytics. However, with influencers suddenly becoming a competitive entity in the social media news ecosystem, legacy news organizations may completely cede the territory unless they start building a following soon.

Influencers spend a lot of time learning how to maintain visibility on platforms. Self-branding and the perception of authenticity are foundational to their visibility (Hearn, 2008). Influencers engage in sociotechnical processes as well—it is not only being authentic and relatable, but also knowing how to 'game' the network's algorithms (O'Meara, 2019). This is a time-intensive and expensive learning process which requires an in-depth understanding of the network cultures and affordances in which they reside.

When news organizations post raw footage (as discussed in Chapter 5) or repost content from other media without adapting to TikTok's visual and cultural vernaculars (as will be discussed in the next section), they choose not to participate in the processes that have rewarded influencers with countless views and loyal audiences. News organizations have found a shortcut to this level of engagement by posting raw footage primed for TikTok users to imitate and carry to virality, especially in times of breaking news, like in the Just Stop Oil sample. This is harder to accomplish without a breaking news video to boil down into a single short clip for circulation. There is still some primary source reposting in the Inflation Reduction Act sample—Vice President Kamala Harris casting the tie-breaking Senate vote was one of the most-played videos in the sample and was frequently imitated—but in this sample the overall presence of shortcut content is much lower. The successes of persona-driven news influencer content in this sample and relatively insignificant presence of raw footage from legacy news media are notable. Put in historical context, this shift is important.

As news organizations shifted away from print media, the internet and social media networks like Twitter configured the current arrangement. Legacy news organizations rebuilt themselves around web traffic through advertising (Christin, 2020), with a few notable exceptions like the New York Times. This allowed them to retain their platform-independence. As with any industry that depends on maximizing traffic, there is pressure to streamline production processes to make content as efficiently as possible. Old social media networks like Twitter fit well into this framework. Headlines and hyperlinks could be posted in seconds, funneling traffic back to the site. TikTok upsets this relationship. The network will not act as a "traffic factory" (Petre, 2015) in any meaningful capacity, and the fact that users are looking for *personalities* makes the efficient recycling of content from legacy news organizations' other production lines a fraught endeavor. There is a misalignment between the type of content that does well on TikTok and the type of content that legacy news organizations can industrially produce.

On the other hand, TikTok's refusal to act as a "traffic factory" has given rise to the predominance of persona-driven content. The lack of a sustainable ad revenue sharing model means content creators are not necessarily paid by the platform for the clicks but are instead paid through third party partnerships they arrange independently. This shifts

the benchmark from traffic to the strength of the creator's brand, their connection with their followers, and their ability to court brand partnerships. The TikTok content creator, like the news organization, retains most of their platform-independence. But unlike legacy news, there is an alignment between the platform vernacular and news influencers' third-party income streams, precisely because TikTok vastly underpays them.

6.2.   Speaking the TikTok Language

As was outlined in the literature review, there is a clear benefit in *speaking the language* of TikTok, especially when communicating about the climate crisis. TikTok users are exposed to a lot of uninformed climate content. The people creating this content are typically not experienced climate communicators (Hautea et al., 2021). Their content is widely circulated because they participate in the trends, they know the inside jokes, and they know how to take full advantage of the platform's imitative affordances. With few exceptions, professional climate communicators like activists, advocacy organizations, and news organizations are not yet fluent in the TikTok vernacular.

One of these exceptions is the Washington Post, which has been producing content that fits the TikTok vernacular well for several years now. They have a small team of charismatic journalists who make content that looks and sounds like it was made by independent creators. The account is persona-driven and the content is produced specifically for TikTok. This is a tricky balance to strike, because as Poell, Nieborg and Duffy (2021) point out, this construction of authenticity and creativity is oppositional to the traditional, if unrealistic, news values of objectivity and factualness (p. 152). There is certainly a level of influencer creep happening here (Bishop, 2022), as journalists are increasingly being asked to take on the responsibilities of internet creators in addition to reporting the news. For a few months in late summer of 2023, V Spehar was welcomed as a guest host. The journalists running the account seem to understand that TikTok won't act as a traffic factory. Scrolling through their videos, there are no instances of decontextualized raw footage. The Washington Post is not posting branded content like independent creators do. Without being able to directly monetize TikTok views, and with

it being so difficult to convert TikTok viewers to the newspaper's homepage, why invest so much time and money into building a brand and a following on TikTok? Micah Gelman, who oversees the Washington Post's TikTok account, addressed this.

> "When we launched our TikTok channel two years ago, we saw an opportunity to deliver the news in a unique way and reach new audiences," Gelman said. "Since then, TikTok has proven to be one of our fastest-growing platforms… "These new positions will augment the success we've seen, helping us further grow, innovate and continue connecting with more people who may not regularly consume traditional news." (Gelman in (Meek, 2021))

The Washington Post sees TikTok as a place to build and expand their brand, or for simply staying relevant in the minds of young people, rather than using it as a driver of traffic and revenue. This finding supports research that as news profits continue to decline, newspapers are increasingly arguing to investors and stakeholders that newsgathering has inherent value, and that this value should be considered in tandem with standard economic value (Boyles, 2020). Producing content for TikTok rather than recycling it from elsewhere is costly and is not directly connected to economic value. The Washington Post employs probably the largest team dedicated to TikTok of any news agency. In organizational environments that depend on analytics to guide investments, like newsrooms (Petres, 2015), funding an entire team of people to produce content for a single social media site that is not directly driving profit could be a tough sell. Businesses tend to become more similar to each other over time as an effect of risk mitigation, especially during times of uncertainty (DiMaggio & Powell, 1983). In the digital age, struggling news organizations emulate winning digital strategies of their competitors which can contribute to homogenous content, although journalists often personally push back on these homogenizing forces (Christin, 2020). (Laaksonen et al., 2022) argue this force is evident in news media organizations' social media presences, but with a twist: instead of becoming more similar to other news organizations, they tend to imitate the social media platforms themselves. News organizations have adopted a language of connectivity and engagement in their public content strategies and in internal communications that imitate the language of social media platforms (Laaksonen, 2022, p.

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15). Isomorphism is present on the content level, too. News media organizations will often copy the content strategies of other organizations seeing high levels of engagement with their content, homogenizing content.

News influencers mimic certain journalistic behaviors to come across as more legitimate, while retaining the appearance of authenticity. Similarly, news organizations are mimicking content creators. The logics of TikTok are pulling these two distinct types of creators closer to each other. This "algorithmic isomorphism" (Caplan & boyd, 2018) is a homogenizing force in the news ecology of TikTok, which may have detrimental effects to users' information diets in the long term. Unfortunately, it appears that most news organizations have landed on posting recycled content and raw footage, rather than mimicking the Washington Post's content strategy.

Figure 13   **Screenshots of Yahoo! Finance and Washington Post videos**
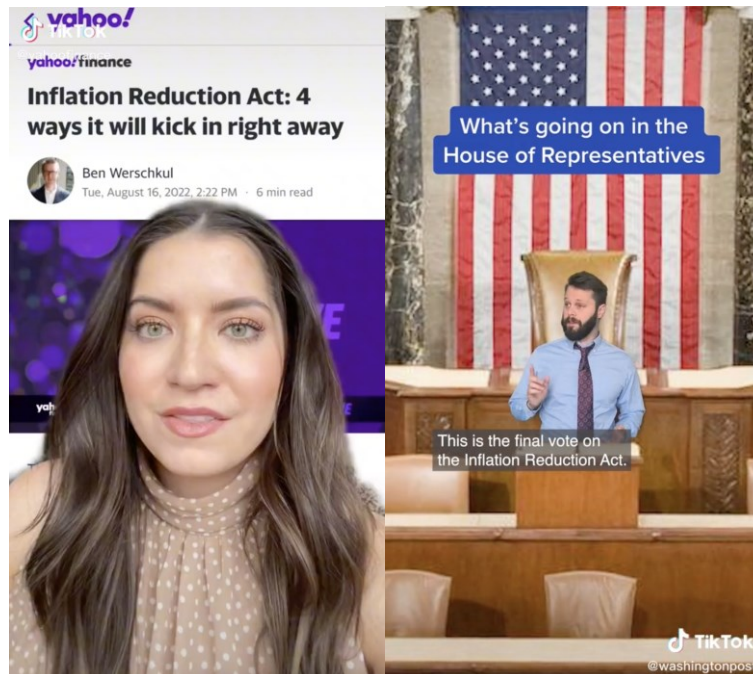
Left: A Yahoo! Finance journalist uses the Greenscreen effect to superimpose herself on top of a screenshot of a news story in her publication about the Inflation Reduction Act. Right: A journalist from the Washington Post uses the Greenscreen function to comically recreate the passing of the Inflation Reduction Act in Congress.

In this sample, there are a few examples of other good journalism that fits the platform vernacular. Yahoo! Finance had a few explainer-style videos, all hosted by one young creator in front of a smartphone camera, using the Greenscreen effect to paste a

Yahoo! headline in the background. Looking at Yahoo! Finance's account, these videos were exceptions. Yahoo! Finance was posting mostly raw footage at this time. There were few other examples of legacy news accounts that matched the vernacular in this sample. The Washington Post is a model for success, but this success comes at a high cost, and few legacy news organizations are willing to pay. Interrogating the organizations that have failed to adapt to the vernacular can tell us more about the nature of the issue.

6.2.1. Adaptation Failures

Platforms try to cultivate original content, and work against unwanted content drifting over from other platforms. Content creators are incentivized to align with this practice through both explicit network policies and implicit social vernaculars. Networks enforce originality through affordances and by equipping creators with tools. For instance, TikTok's vertical video layout rules out reposting horizontal video from YouTube. TikTok built video editing tools into the app, and advanced tools into its sister app CapCut, allowing TikTok to shape the set of tools available to creators, and to encourage or discourage certain filters and trends. On the social side, the vernacular of Facebook is different obviously from the vernacular of Reddit, which are both different from TikTok, and each requires content to be socially and physically repackaged to fit it. Creators seem to understand this. One interviewed for this project posts most of her content to TikTok, but posts longer-form educational and investigative videos to her YouTube page. By using multiple platforms, creators maximize their reach and diversify their audiences. To do this they must produce content that will mesh with multiple distinct platform cultures with minimal modifications. Of the creators interviewed for this project, all posted their content to more platforms than just TikTok, but most cited TikTok as their primary platform. All posted to Instagram Reels, some had begun experimenting with YouTube Shorts or had traditional YouTube pages. A handful also posted to Facebook and Pinterest. TikTok appears to be a net-exporter of content of internet culture, and some platforms have responded to this with important controls. Instagram, for example, will not algorithmically recommend any videos it recognizes as containing the TikTok watermark (*Instagram's @Creators on Instagram*, 2021). Creators

dance between adapting content to the platform while retaining an efficient production process that maximizes availability, resulting in textual similarity across individual creators' accounts on different platforms.

Legacy news organizations are less adept at this process. The allure of simply reposting content without versioning it specifically for TikTok is strong, especially because news organizations have so many existing content streams in place. Television news organizations were particularly bad offenders, often posting videos ripped straight from their cable newscasts. In the worst examples, text was unreadable, and stories were poorly re-cut to come in under the maximum duration. Graphics are overengineered and visually complicated. The language of television news, marked by high production value and smooth graphics, does not fit the platform vernacular.

Figure 14   Screenshots of news videos improperly formatted for TikTok
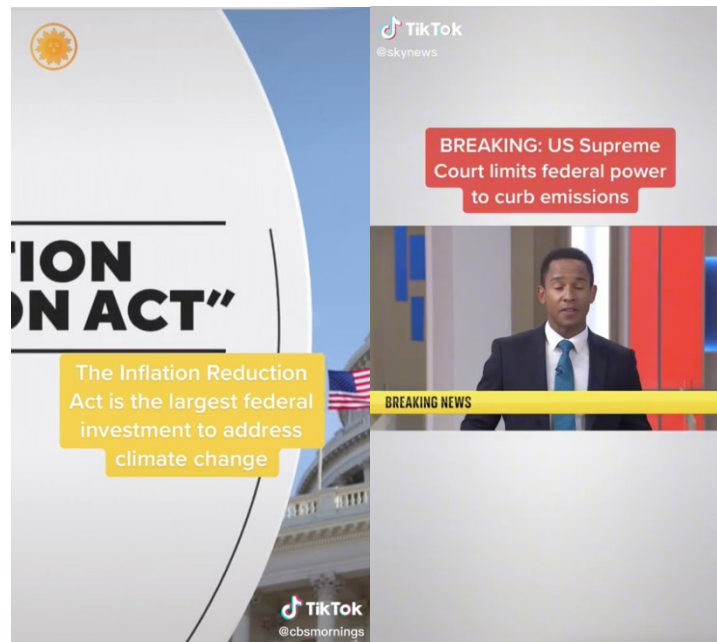
Left: A poorly-formatted video from @CBSMornings with much of the graphic cut off. Right: @Skynews reposting a video clip from their news cast in horizontal format.

Content on TikTok does not *need* to be original to be popular. Some of the most engaged-with content on the platform has been ripped from its original medium and reposted. Content experts warn against this type of reposting, citing different network cultures and content expectations (Made, 2022). News organizations have recognized that each platform requires custom content (Kalogeropoulos et al., 2016), but videos in this

case study show us that in the name of cost reduction, news organizations see what they can *get away with* and still attract satisfactory levels of engagement. News outlets seem to understand platforms on a technical level—using TikTok's captions, and at least made an effort to format correctly for vertical video—this reflects the findings of Hase et al. (2022), but it's not always the case.

In their survey of TikTok news content, (Vázquez-Herrero et al., 2020)) found that 85.3% of videos in their sample were original ("created especially for TikTok"). The remaining portion consisted of content adapted from other platforms or from television broadcasts. The study found that 98.4% of all posts showed content that was "adjusted to the format of the platform and correctly displayed". Another study on Facebook's video ecosystem found that only 70% of news content had been created specifically for the internet, and not reposted from television (Kalogeropoulos et al., 2016). Both studies tested for a minimum level of content adaptation. Looking only at the technical level, my research affirms their findings. However, testing at vernacular level, the situation is much worse. Matching the vernacular of TikTok requires news organizations to act more like influencers, understanding and participating in network trends and producing content, rather than recycling content from elsewhere. The platform vernacular depends on creators not only striking the right tone on TikTok, but participating in the trends and conversations that are happening on the wider network. The latter of these points is the trickiest for news organizations to adapt to because it asks journalists to not only write stories, but also act more like influencers (Bishop, 2021).

6.3. Working Around Affordances

6.3.1. Contesting Timelessness

Figure 15   Thumbnail images from @UnderTheDeskNews' profile page
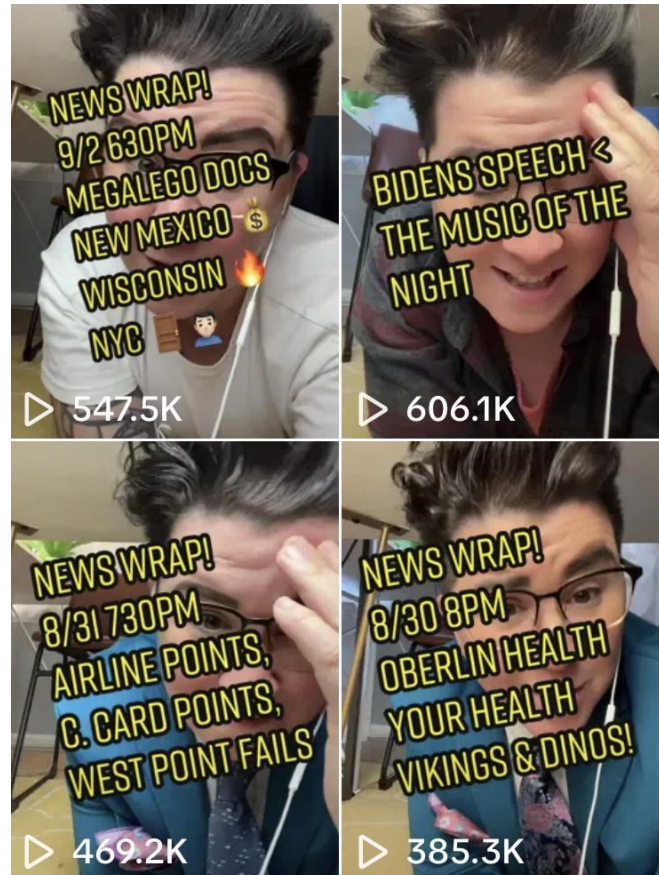
A screenshot of @UnderTheDeskNews' account feed, with three of the four videos' thumbnails including the date and time they posted the video.

Like a Vegas casino, TikTok "exists outside of time" (Matsakis, 2019). Videos streamed from the FYf do not get timestamps. The site tested timestamps for a short while in 2019 but decided not to go forward with them for unknown reasons (Haskins, 2019). This omission exponentially increases the amount of content "worth engaging with," as content on other platforms older than two days is often cast aside (Grosser in Matsakis, 2019). Content from years ago may suddenly start trending, and viewers wouldn't know a thing (Matsakis, 2019). To see when a video was posted, the user must navigate to the creator's profile and manually find the video. If the video was posted a long time ago, the user would have to scroll through the creator's chronological feed for a

long time. Videos are not titled, so there is no ability to search within a creator's video library. Thankfully, videos in the Search page are timestamped, so a user searching for a specific news story will know when the videos were posted. But without any indication that the news they are watching is old, users who incidentally encounter news in their algorithmic feeds may be misled. The consequences of this design affordance have not been explored in any research yet. Anecdotally, in my personal use of TikTok, the For You feed has given me videos about major accidents and weather events long after they happened—plane crashes, a crane collapse in Manhattan (Fadulu and Holpuch, 2023), and meteorological forecasts of Hurricane Lee, which threatened to hit my home in New England before ultimately fizzling out. If I hadn't followed up the crane collapse video with a Google search, I would not have known it actually happened two months earlier. If I was visiting New England and didn't know Hurricane Lee had passed two weeks ago, I might have been seriously worried. The TikTok algorithm does not differentiate breaking news from other content, and the lack of timestamps exacerbates the issue.

One tech columnist called the experience of watching news on TikTok plainly "disorienting": "When was all this stuff happening?" (Robertson, 2023). TikTok trades the user's groundedness in time for immersion, which could have seriously detrimental effects to the news ecology as people are unknowingly fed old news. If this old news starts trending and is simultaneously pushed to millions of users' feeds, like the algorithm regularly does to old memes (Matsakis, 2019), this could cause episodes of mass panic and could harm people. It could also resurrect old, irrelevant stories at any time, potentially leading to misinformation to spread.

News organizations and content creators work around this by manually captioning their videos with the date, as depicted in the above examples from Spehar's profile page. This could cost them views, because content that users determine to be old is usually considered not worth watching, making the content less susceptible to the whims of the algorithm. This practice requires the creator to dedicate some of their limited thumbnail real estate to the timestamp. Even on Spehar's channel, the timestamps are inconsistent. Manual timestamping is not supported by the platform, so it is not possible as a user to specifically search for recent news on a topic. The lack of automatic timestamping is another design choice that makes TikTok's priorities obvious. Maximizing the amount of

content worth engaging with is worth more to the company than any benefits to the health of the information ecology that timestamps would create. However, as the newfound successes of the news content creators show, news content on TikTok is here to stay. This does not need to be a dilemma. An easy solution would be to allow creators to enable timestamps themselves. In the following sections, more advanced solutions to how TikTok handles the news are discussed.

6.3.2. Hyperlink Politics

TikTok does not support hyperlinks in videos, in descriptions, or in comments. Link text posted on Instagram is not clickable, meaning users need to copy and paste into a web browser to access linked off-platform content. On TikTok, links are automatically removed. The only place both platforms allow hyperlinks is in account biographies, where users may post one link to any site, and within the social button which can link to other social media sites. Certain high-profile creators on TikTok may qualify for an extra link, limited to a tip jar, Q&A section, app download link, or a verified charity. There are otherwise no ways for a user to be linked off-platform while using TikTok.

Other networks, like Instagram, have taken a similarly anti-hyperlink stance. Links pasted in the descriptions of Instagram posts are not clickable or selectable from the app. Anything but the shortest links are effectively unactionable. Unlike TikTok, Instagram does not automatically remove posts containing links. This has the effect of keeping users immersed on the platform. It also encourages creators to bring external content into TikTok using effects like Greenscreen and Duet, like news headlines and breaking news clips, as was discussed in Chapter 5. A news creator using Greenscreen over a news headline would be a natural time to include a hyperlink to the news story, but if a viewer wants to follow up on that source, they would need to leave the app and search for the story themselves.

The creators interviewed for this project noted that this design choice on TikTok makes it nearly impossible to cite their sources or refer viewers to additional resources. They worry about the accessibility of the information they provide and want to make it easy for viewers to access. This may be a moot point because, more often than not,

people will read or share a news post without following the included link to the story (Dewey, 2016). Still, the lack of hyperlinking was lamented by most of the creators interviewed for this project.

> Q: did you source those directly in the video with the caption feature, or somewhere else?
>
> Mabel: "Yeah, I used to source it in the comments of TikTok, but they take it off because they don't want you to link another website. On Instagram, I do source it in the captions."
>
> Emma: "This is what I really like about YouTube, I can put my sources directly in my description. But with Instagram and TikTok, I have to direct people to go to my bio and then click on the link. So they have to click on my page on my bio and then on the [Linktree]. They have to click three or four times just to get that source, and people are lazy, especially on TikTok, where shortform content is king. Very few people are going to do that, and so that might steer some people away."

Citing sources is more than good journalistic practice. For these content creators who are seeking legitimization, citing sources builds personal brand ethos. Citing sources is what the news industry does and what academia does. Even if viewers do not follow the source, the performance of citing sources itself lends news-like legitimacy to these creators. Creators occasionally try to work around this by verbally citing sources, or by creating extensive Link-in-bio systems from the one hyperlink allotted in the bio. Linktr.ee, Later.com, and other link-in-bio providers create simple websites for creators to add extra links within a user's biography (see Figure 16). As one creator expressed, this restrictive approach to links may be pushing creators off the platform entirely.

> "That's why I'm working on a website right now, so I can have a dedicated space with all of my resources on it. You see that my [Linktree] looks length right now, because I have maybe one too many links on there." (Emma)

Figure 16   **@UnderTheDeskNews' biography section of their TikTok profile**

A typical news account biography section, with profile picture and pronouns; following/followers/likes count; follow, direct message and linked Instagram buttons; 80 character biography section, customizable hyperlink; and customizable button.

Link-in-bio pages don't solve a fundamental problem with this design: too many clicks to get the user where they want to go. Viewers would need to exit their FYf flow and follow the links in the user's bio until they arrive at the relevant source. If it was an old video, they may find the link had been replaced by newer content.

Ultimately, for our influencers creating eco-content, it does not matter much if a user follows the links to follow up on a particular claim. The influencers' sources of income do not depend on clicks—besides, TikTok is known for severely underpaying its creators compared to standard YouTube, as little as $1,500 for a creator with millions of followers (Southern, 2023; Whateley, 2023). TikTok creators interviewed for this project and elsewhere make the majority of their income from paid partnerships. However, for legacy news organizations, there is a disincentive to use platforms like TikTok and Instagram because they cannot link back to their homepages, their primary revenue sources. Older social media sites like Twitter are a significant driver of web traffic to news organizations, only behind hyperlinks from other news stories (Wojcieszak et al., 2022). 9 in 10 Tweets from US news organizations contain hyperlinks to the relevant story (Russell, 2019). Without hyperlinks, people are not only less likely to manually

navigate to the connected story, but downstream clicks are mitigated as well. This makes it difficult to directly monetize TikTok content. Looking at how the news organizations are using their bio links illustrates this exercise in futility (Figure 17).

Table 9   Bio hyperlinks of the ten most followed news accounts across all samples

Account	Bio section links	Last updated
Yahoo News	Hyperlink: Newsletter signup Special link: none	n/a
NowThis Earth	Hyperlink: Official YouTube account for UpcycleThis series Special link: none	1 month
Yahoo Finance	Hyperlink: Yahoo! Finance web homepage Special link: none	n/a
TalkTV	Hyperlink: Talk TV web homepage Special link: none	n/a
Sky News	Hyperlink: Linkin.bio containing all posts, with thumbnails, each hyperlinked to respective news stories on website. Special link: Sky News app	Up to date
Brut.	Hyperlink: LinkTree: Podcast Brutally Informed; links to other social media; button to subscribe to email newsletter. Special link: none	n/a
itvnews	Hyperlink: LinkTree: Other social media presences; then list of news stories: Twitch streamer reacts to deepfake scandal (YouTube link from March); The rise and threat of Andrew Tate (YouTube video from February); hyperlink to ITV News website; hyperlink to podcast. Special link: ITV News app	4 months
nowthis	Hyperlink: YouTube video. Special link: email newsletter signup	Up to date
UnderTheDeskNews	Hyperlink: Linktree: Venmo; PO box; contact email; Patreon; brand collaboration; Philanthropic crowdfunding effort; political activism email campaign; Merch store; Survey; Podcast; Sponsored content; YouTube account; personal website. Special link: TikTok official tip jar	n/a
VICE World News	Hyperlink: Vice webpage Special link: email newsletter signup	n/a

Data in this table was collected manually in July 2023.

All accounts use bio hyperlinking, most often pointing toward the organization's homepage (6); linking to at least one other social media platform account (4), most commonly YouTube (4); or linking to an email newsletter subscription (4). Four accounts use their one hyperlink to connect a link-in-bio tool, which acts as a hyperlink aggregator to expand the number of links available. Only one account, Sky News, has their hyperlink set up in a way that makes it easy for a user to find the corresponding news story for further reading. The others use their hyperlinks to connect users to their other social media accounts, to sign them up for a newsletter, or simply direct them to their homepage. ITV's has two links to YouTube videos posted more than four months ago. Nearly all hyperlinks collected are self-referential, with the exception of UnderTheDeskNews's links to a crowdfunding effort and an activist campaign. Most of these links are set up to avoid the need to frequently update them. In all cases except Sky News, the bio hyperlink is not used for sourcing claims or directing people to supporting information. Most link to the homepage or to a signup page for the organization's newsletter. It is hard to imagine that these are significant drivers of traffic to their websites, given how many clicks are between a user watching a video and accessing the website. Once again, the affordances of TikTok prevent the site from acting as a traffic factory for news organizations. However, this time it comes at a cost for the viewer because they cannot easily verify claims or find more information about a topic.

6.3.3. Platforms Turn Against the News

The lack of hyperlinks on TikTok, Instagram, Shorts and other social media platforms may feel like they have reneged on the infinitely scalable interconnectivity that Web 2.0 promised (O'Reilly, 2009). This is also a departure from the design of older platforms like Twitter which centered news and have a long history of use in communicating breaking news (Russell, 2019; Sutton et al., 2008; van Dijck, 2011). We can intuit a few reasons why these new platforms have forgone hyperlinks.

1. Without links taking users off platform, distracting them, they are more likely to remain immersed in the content the platform is sending. Exit ramps are removed completely.

2. Hyperlinks present a risk for user security. Under functional content moderation systems and policies, hyperlinks are checked for harmful content, like phishing scams. With content moderation comes administrative cost, and removing hyperlinks altogether streamlines the content moderation process.

3. Older social networks like Facebook and Twitter have faced pressure from world governments regarding hyperlinks to news content specifically. The Australian News Media Bargaining Code and the Canadian Online News Act both require news intermediaries (social media sites) to pay news organizations for every linked user. In response to the Australian bill, Facebook announced they would remove news links from their online services altogether, until the government eventually caved (Meade et al., 2021). Meta and Google, flexing their power over news organizations that depend on their platforms (Poell et al., 2021), both announced the removal of news links from their sites in response to the Canadian bill (Hines, 2023). As of Summer 2023, Canadian news publications were inaccessible to Canadian users on all of Meta's platforms.

Adam Mosseri, head of Instagram, outlined this platform operator's dilemma nicely following the launch of Threads in 2023:

> "Politics and hard news are important, I don't want to imply otherwise. But my take is, from a platform's perspective, any incremental engagement or revenue they might drive is not at all worth the scrutiny negativity (let's be honest), or integrity risks that come along with them." (Mosseri in Hatmaker, 2023)

Meta has been actively decreasing the amount of news in users' Facebook feeds, now down to 3% in 2023 ("New Analysis Shows News Industry Reaps Considerable Economic Benefit from Facebook," 2023). This coincides with recent public polling that suggests interest in receiving news at all is dramatically down (Coster, 2023). Instagram's position on news content is tame in comparison to Elon Musk's approach to news content on Twitter/X. Musk announced changes in August 2023 to how the site handles

hyperlinks to news stories, removing headline and content previews from the link's thumbnails (Paul, 2023). Twitter/X outright suspended accounts of prominent journalists critical of Musk following his takeover in late 2022 (Paul et al., 2022), and wrongly labeled NPR, BBC, and other publicly funded news organizations as "state-affiliated media", which led these organizations to leave the platform altogether (Folkenflik, 2023). TikTok has not made public comments about their intention to support news content on their site, but from a design standpoint, a hyperlink that takes the user off-platform would break the flow state brought on by the app's infamous infinite scrolling. However, the platform added the ability to link to e-commerce sites, so the company is willing to break the user's flow state for ad revenue, but not for information verification purposes (DiBenedetto & Cavender, 2022). The attitude of platform operators about news content has soured in the past few years, and this battle can be seen most clearly in how these platforms handle hyperlinks.

This presents another question about future news ecologies on platforms like TikTok: are there alternatives to the influencer-fication of news, or pathways for news organizations to deliver quality information and see the same circulation as their news influencer competitors? Legacy organizations on TikTok have, for the most part, built their following from the ground-up. Competing with freelance content creators on TikTok means investing more money into content production than was necessary for other networks where a headline and hyperlink was enough to drive traffic. News organizations that have invested in TikTok content like the Washington Post and Yahoo! News run small teams of employees dedicated to vertical video format (Boykin, 2023). An alternative future for legacy news organizations could be modeled after non-profit organizations and businesses which frequently partner with content creators for promotion. The Washington Post did exactly this, at least temporarily, when they asked V Spehar (@UndertheDeskNews) to fill in for their TikTok staff journalist Dave Jorgenson during his paternity leave (2023). News organizations not already established on TikTok could skip the tedious and expensive follower-building phase by partnering with a popular news content creator, or even by hiring the influencer. These partnerships would further formalize news influencers as a profession, and there is a need for further research

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into how this formalization processes could affect news ecosystems on platforms like TikTok down the line.

This also assumes that TikTok is a truly neutral platform and that only user inputs dictate the content the algorithm chooses to boost, which is not true. As evidenced by the STEM feed, and by TikTok's shift toward educational content, TikTok does have a stake in promoting certain kinds of content over others. TikTok has recognized that by more carefully curating content, or by at least allowing users access to specialized, more curated feeds, they can increase the quality of the information ecosystem on their platform. The news ecosystem remains in poor health, but there are many possible interventions TikTok could take to improve it without altering the core functionality of their platform. To name a few:

1. TikTok could implement quotas for content from verified news sources in users' feeds. Meta adjusts the proportion of news content in its users' feeds, (Meta Newsroom, 2023) so in theory, TikTok could adjust this too.

2. TikTok could implement a separate news feed tab, like they have implemented with the STEM feed (*Take Discovery to a New Level with the STEM Feed*, 2023). If they desired, content in this tab could go through similar fact-checking processes as content in the STEM feed does.

3. TikTok could algorithmically boost news content that is over a certain length, like 30 seconds. This would disincentivize shortcut content.

4. TikTok could create a separate verification status for news creators. This flag could enable certain user-interface elements like timestamping. TikTok's verification system is currently an opaque mess, and the requirements for earning a verification badge are unclear (Caddell, 2022).

These solutions allow the network to retain the affordances that work against hyperlinks and work in favor of internet personas. They would reduce the amount of

shortcut content and incentivize quality news production. TikTok has intervened in the content it incentivizes before, as they have done by implementing account verification, increased maximum durations and specialized fact-checked feeds. Still, these are band-aid solutions to problems that have grown from the foundations of the network. They may improve the health of the ecology by eliminating some of the dynamics that work against effective news reporting and environmental communication, but TikTok would still fundamentally be a platform based on imitation.

TikTok has a vested interest in improving the health of information ecologies on its platform. TikTok has weathered a number of public controversies, becoming a sort of punching bag for people concerned about what the internet is doing to its users, especially children. Security and privacy concerns often stand in for geopolitics. TikTok endured a firestorm of bad press after the Center for Countering Digital Hate published a report that found the algorithm had pushed eating disorder and self-harm content into simulated new teenaged users' feeds within three minutes (Kelly, 2022). Former US President Trump famously tried to ban the site as part of a greater tirade against China (Allyn, 2020). India banned the app in 2020, citing national security risks (Singh, 2020). Since then, number of US states passed laws to ban TikTok on government devices, also citing national security risks. The European Union, being less concerned with TikTok's ties to the Chinese government but nonetheless in active pursuit of legislation to protect internet users' privacy, introduced the Digital Services Act which forced TikTok to make its personalization algorithm optional (Weatherbed, 2023). Set against these political environments that have become increasingly hostile to TikTok for a variety of reasons, justified or not, their continued movement away from 6-second memes is strategic.

Throughout this thesis, I have resisted the assumption that news content is inherently *good* as much as possible. As I've argued throughout this chapter, the architecture of TikTok rewards short, decontextualized news clips that I term shortcut content. These clips taken alone are not harmful, but they are not good, either. What makes content trustworthy? According to the Associated Press's stated reporting values, accuracy, avoiding distortions and biases, identifying sources when possible, and delivering just the facts are imperative (*News Values and Principles*, n.d.). A not-for-profit organization like National Geographic Society—which operates a popular TikTok

page—adopts a position that delivering good information means doing more than delivering the facts. Part of their mission statement reads that they fund projects that "Equip young people with the knowledge and critical-thinking skills to analyze real-world challenges" ("Our Story," n.d.). Then, there are information disseminators somewhere in the middle like Vox, which emphasizes explanatory journalism rather than only reporting the facts (*About Us*, n.d.). The creators interviewed for this project invoked language that reflects the values of these organizations—educational, well-researched and easy to understand were commonly stated as being important attributes.

Despite implementing some creative technical solutions to increase the health of the information ecosystem, shortcut content and resulting toxic information remains a problem on TikTok, and environmental activism content is especially susceptible to subversion. Alice Marwick argues that trust in information found online is a fundamentally sociotechnical phenomenon—a product of both cultural systems and technical infrastructures (p. 488, 2018). People are more likely to believe information online that aligns with their previously held knowledge than information that challenges it, even when the site has interventions like fact-checking and verification systems in place (Philips & Milner, 2021, p. 173). These interventions attempt to remedy an information ecosystem in poor health, but they address the issue assuming that users' harmful content is solely responsible. The poor state of environmental content in these case studies (especially in the Soup Protest study) was created by users but shaped and amplified by the site's infrastructure.

Chapter 7.   Conclusion

7.1.   Major Contributions

Through these three case studies, this thesis makes three significant contributions to the fields of internet and environmental communication research. First, that people communicating their personal experience with a climate disaster are not directly connecting this experience with climate change, which is likely because TikTok extends offline social norms that identify it as a sensitive topic. Second, that the imitation logic of TikTok incentivizes news organizations to post decontextualized clips of breaking news, which I have termed "shortcut content", and that this type of content is especially harmful to environmental advocates. And finally, that independent influencer-journalists who are conversant in the platform vernacular are taking over the quality environmental news and education void. Taken together, these findings paint a picture of an information ecology in flux.

Climate Disconnection

In mapping the videos posted to TikTok during the 2021 Pacific Northwest Heat Dome, a few things were immediately evident: that there were next to no "official" sources of information, like news or advocacy organizations, or meteorologists; there was an overwhelming amount of users posting their personal stories of living through the Heat Dome, expressed creatively through memes and often tinged with a uniquely ambivalent kind of humor; and that almost no one was explicitly connecting the Heat Dome to climate change or other systemic environmental issues. The last finding is particularly important because even though the Heat Dome was later called a "1-in-10,000 year event" and statistically impossible without climate change (Mulkern, 2022), it illustrates that this link was not being made by people in real time, despite the absurdly unusual and oppressive temperatures. This is because the imitative infrastructure of TikTok extends real-world social norms that already preclude the discussion of climate change in everyday social situations (Norgaard, 2011). The disconnect could be remedied with a greater presence of official sources of climate information, as well as with more

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adept responses from climate activists and advocacy organizations, which were almost completely missing from all three samples. However, as Chapter 5 showed, many news organizations are making the situation worse.

Shortcut Content and Imitation Logics

The imitation logic of TikTok ask creators to constantly put themselves in conversation with network trends through viral sounds, effects, and topics. One way to do this is through "shortcut content," which describes news organizations posting raw footage of a breaking news event without any context or analysis. This content is primed for other creators to remix and apply their own interpretations and analysis. Shortcut content prioritizes engagement over thoughtful analysis, under the guise of being objective. Shortcut content is not specific to TikTok, TikTok's logic of imitation make it especially likely to be highly engaged with. News organizations post shortcut content because it gets very high levels of engagement, thus "shortcutting" their way to a massive online audience. TikTok creators who adversarial to the environmental movement then take this content and stitch their own analyses to it.

Because of shortcut content, cynical opinions about the efficacy of environmental activism, and misinformation about the destruction of the van Gogh spread across the network rapidly. In comparison to their TikTok coverage of the JustStopOil protest, the same news organizations generally did *good* journalism on their webpages and television broadcasts by contextualizing the story—why the protestors chose this action, what the stakes of climate crisis are, and that the painting was unharmed. Despite social media operators collectively tiring of supporting news content, news is going to find its way onto their platforms. The affordances of TikTok that cultivated this level of vitriol need to be scrutinized.

Shortcut content dominated the Just Stop Oil sample but was also present in the Inflation Reduction Act sample in smaller numbers. Videos of Vice President Kamala Harris casting the tie-breaking vote to pass the bill in the Senate and of Joe Biden signing the bill were frequently posted by news organizations with little to no context. However, this time, raw footage occupied fewer spots on the list of most-engaged-with videos.

Instead, the top videos were more thoughtful, informative, and pro-environmental. "Shortcut" implies that there is a less direct, more responsible route to the destination. This route was paved by a rising slate of citizen influencer-journalists who followed the progress of the bill through Congress and posted thorough analyses of the bill. Their content rose to the standards of good journalism, and they did this while retaining authentic, creative, and relatable personas.

Legitimizing Independent Content Creators

With a void of reliable news content on TikTok left unfilled by legacy news media, these influencer-journalists have cultivated a healthy information ecology for climate news and education. These accounts are persona-driven and are usually run by young people who are not professionally trained in science communication or journalism. As such, their work tends to preach an overly individualistic theory of change, and sometimes contains inaccuracies, but overall was not bad. Their growing influence was recognized by the White House when they extended an offer to several TikTok journalists to join them for a special press briefing on the Inflation Reduction Act. The creators I interviewed emphasized the importance of lightheartedness and educational novelty in their content. Independent citizen journalists and environmental educators expertly balance the performance of authenticity with the performance of 'doing the news', but they claimed that aspects of TikTok make it difficult to do the latter. They aired frustrations about working around the limitations of TikTok, especially regarding the inability to hyperlink to relevant sources to back their research and resources for viewers to follow. They want to appear more legitimate, and they see a path to legitimacy through further blending their persona-driven accounts with traditional journalistic practices.

At the same time, some legacy news organizations are trying to look more like influencers. The Washington Post's TikTok account is the best example of this, and their content is consistently well-received compared to others. Other legacy news organizations have experimented with more persona-driven content, but many fall into the trap of reposting content from their other media streams to TikTok, which tends to

receive low viewership. This type of content is not so consequential for the information ecology because it is so poorly circulated, in comparison to shortcut content. Both failures are holdovers from early social media's datafication of news content (van Dijck and Poell, 2013), and from news organizations' tendency to treat social media sites as "traffic factories" (Petre, 2015)—neither of which are supported by the architecture of TikTok, but nonetheless remain as dominant forces in the news ecosystem on TikTok. These outdated habits don't serve news organizations anymore but moving to a persona-driven TikTok presence that, at best, can only promise to "build the brand" is a tough ask of organizations with dwindling financial resources.

Contesting Obfuscated Platform Geographies Through An Ecological Lens

Finally, this project advocates for future research projects that contest the obfuscation of social media navigation and against the elimination of official research APIs. When proposing this project, I was personally interested in quantitative social science methods. Operationalizing a computerized analysis for video was far outside my skillset and would have been unattainably expensive and would not have produced as rich results. I managed to learn enough programming to write code to scrape TikTok videos. I acknowledged that I would need to qualitatively analyze the videos downloaded (*and that the results would probably be richer because of this*). Following the work of Hautea et al. (2021) who also studied climate change on TikTok, I chose to use Ledin and Machin's (2020) guidelines for multimodal analysis as a method that could keep up the complex interconnections of video, sound and text that the platform has become known for. Still, something about qualitative analysis irked me at the time: how could I uncover system-wide patterns from the point of view of a single researcher? This was easier to do accomplish on social media sites with more straightforward navigation, as has been shown by ambitious projects that map entire social networks (see RedditMap.Social, n.d.) or any number of Twitter research projects that analyzed millions of Tweets gathered from the site's now-deprecated API (for example, Al-Rawi et al., 2018). Through this project, I've fallen in love with qualitative research methods, but echoes of that question remain. Phillips and Milner's (2021) work aided my analysis. From the higher vantage point they argue is necessary for analyzing internet culture, I could see larger

sociotechnical trends in environmental communication on TikTok. Phillips and Milner's notion of "polluted information" set up a framework for assessing the health of information systems, breaking away from the dichotomous thinking brought on by misinformation, fake news, and the like. Platforms and researchers struggle when bad information does not fit neatly into the "misinformation" bucket. This framework made room for a key finding of this thesis: while misinformation, climate denial and skepticism, and other types of the most egregious bad information were exceedingly rare, effective environmental communication was also rare. Environmental communication was overwhelmingly ambivalent in the Heat Dome sample; mostly negative in the Just Stop Oil sample; and slightly more positive in the IRA sample. The health of the overall ecology could be considered poor as a result. This type of analysis would not be possible to achieve without first constructing map of the network, which social networks are making increasingly difficult to do.

This framework is effective for the research purposes of this thesis, but is especially important in the context of social media companies' ever-tightening grip on data accessible to researchers (see Bruns, 2019). We are seeing a shift in the architecture of social media sites toward greater reliance on algorithmic feeds. Before this shift, accessing public data on social media sites was a question of building scraping tools that could collect it at scale. Now, even with functional scraping tools, constructing a representative sample is difficult because the boundaries of content genres are blurry and online communities become much more ad-hoc. The landscape of the site becomes obfuscated from the user's and the researcher's perspectives. No more URLs, back buttons, or communities—a "postgeographic" space (Seaver, 2023, p. 137). To the user, it doesn't matter because the algorithm is so good. Mapping networks is becoming more and more challenging because every user is now experiencing a different landscape. Finding ways to maintain the top-down perspective is essential to social science research, but it is at risk of being lost because of increasingly restrictive access to public data on social networks. Continued innovation in methods for algorithm-centric social networks will be necessary to ensure that data-activism (Kazansky et al., 2019) is a tenable research position.

7.2. Limitations, Future Research and Conclusion

Throughout all the case studies, there was almost a total absence of conservative legacy news organizations. At first, I was worried that somehow TikTok had recognized my burner researcher account as identifying with more liberal outlets and had filtered me into that bubble, but I verified my approach, and concluded that they just do not assert much of a presence on the network. There is no Fox News, no Breitbart, no Daily Express. Other conservative news networks have accounts, but their videos were present only in low numbers in my samples. It's possible that these organizations don't see their audiences on TikTok, or that American conservatives' perspective of TikTok was irrevocably soured after President Trump's sinophobic tussle with the network (Allyn, 2020). There was a similarly low presence of content from educational institutions and non-profit environmental organizations. Both are curious omissions that I can't explain in this research project. They pose questions about the diversity of sources and the heterophily of information ecosystems on TikTok.

TikTok's algorithmic recommender system is extraordinarily effective at identifying its users' taste. As was discussed in the literature review, the TikTok algorithm is so good that it is mystified by users. Users rave about the specificity of the all-knowing algorithm. Creators also benefit from the algorithm because videos are pushed to exactly the audience that wants them, with minimal labor required up front, in comparison to old and imprecise tagging and description systems like on YouTube. However, occasionally a video will be pushed to an audience that the creator did not expect or intend to see it. One interviewee recounted a friend's video that was pushed to an unexpected audience.

> Me: "Is talking about global warming controversial?"
> Gabrielle: "On TikTok, not so much, because the algorithm is so good
> about pushing your content to people that know global warming
> is real and care about it. It hasn't happened to me yet, but [my
> friend] posted a video about the Hoover Dam being empty, and
> people were like, 'this is fake'… [They] attacked her like "you
> don't understand water". They were calling her stupid, and this

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whole thing happened because it got pushed to the wrong side of TikTok. And so she had a lot of climate deniers telling her how wrong she was."

The "wrong side of TikTok" is a colloquialism creators and users invoke when the algorithm recommends them videos that do not align with their beliefs. They cross into terrain within the recommender system they feel is foreign and unwelcoming. Users can find themselves on the wrong side of TikTok after intentionally or unintentionally interacting with a video they found to be outside their expected feed. This brings back the question about the "success" of environmental communication. What segments of the Six Americas (Leiserowitz et al., 2021) are receiving these videos in their feeds? Are eco-influencers *only* communicating with audiences of people who are already aligned with their message? Should TikTok try to introduce more heterophily (i.e. expose people who don't usually see climate content in their feeds to more of it)? Is it ultimately a good thing that adverse audiences are exposed to the content of eco-influencers, even if it exposes them to online harassment? It's possible that the thing that allows eco-creators to produce quality content and have a good experience on the platform is the thing that is hampering effective climate communication: the recommendation system's incredible ability to know what the user wants means this content is sent (almost) only to people who already agree. If educational and newsworthy climate content is filtered from users who aren't concerned or alarmed about climate change, that is a problem.

Further research could examine the filtering effects of the TikTok algorithm. This could benefit from other methods that replicate the user experience more closely, like autoethnography or through donations of user data (e.g. (Zannettou et al., 2023). While examining the information ecology of TikTok from above allows us to see the broader trends happening across the site, there are limitations to this methodological approach. The ecological perspective is far removed from how individual users experience the platform. The sequencing of videos is not taken into consideration at all with this method. A piece of shortcut content could be followed by a video with the appropriate context, which could help fix the decontextualization issue I identified. These projects would also benefit from a cross-platform approach (Pearce et al., 2018). Initially, I intended to

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include a comparative analysis of Instagram Reels and YouTube Shorts in this project. While the architecture and logics of these two platforms are almost identical to TikTok, so much of this study should be relevant to future research on those platforms, they have different userbases and content, and thus are worthy of independent study.

As I outlined in the literature review, research interest in the TikTok algorithm is very high, spurred by popular mythologies about the algorithm's magical capabilities. It is important to continue studying this, but I argue that more attention needs to be paid to the platform's imitative affordances and resulting network dynamics. I identified news organizations' dependence on shortcut content as one of these dynamics. Further research could explore the prevalence of shortcut content in other news discourses, outside the news sphere. Similarly, other research projects have explored the algorithmic and sociotechnical processes behind the proliferation of conspiracy theories and climate misinformation on TikTok (Richards, 2022). While I found almost no climate misinformation in these three particular case studies, it has been widely reported in other digital enclaves on TikTok despite being against the platform's content policies (see Calma, 2023; Tolentino and Sung, 2023).

Further research into the adaptation of newsrooms and other organizations to the changing social media landscape is needed. This should build on top of the scholarship of Petre, Poell and Nieborg, van Dijck, and Laaksonen, who studied how organizations adapted to social media like Twitter and Facebook. As I've elaborated in this study, the logics of TikTok are entirely different—news content is less easily datafied and needs to emulate the TikTok vernacular. This is giving rise to a very different information ecology. Meanwhile, social media companies are turning away from news content. Amidst so much controversy over misinformation, election security, and political vitriol that is associated with news content, they have decided it is easier to discourage it on their platforms. More work needs to be done to see what effects these changes have had on online news ecologies and in newsrooms. The rising cast of news influencers and the success of the Washington Post's TikTok account have shown that there is opportunity here for both organizations and the health of the environmental news ecology, but that opportunity might be squandered if newsrooms remain stuck in datafication mindsets.

Because TikTok isn't directly monetizable and does not direct traffic en masse back to news organizations' webpages, the incentives for news organizations to use TikTok are different from other social media sites. Independent creators typically monetize the platform through branded content, which is arranged outside the platform. Four out of six of the content creators I interviewed for this project said they produced branded content, and all expressed dissonance about the practice. On one hand, they were thankful to have control over the type of companies they worked with, but they did experience dissonance when confronted with partnership offers from companies they felt did not care about the environment. Three creators specifically mentioned they worried about being complicit in greenwashing. Still, most reported they encouraged viewers to engage in careful consumption, which is an individualized response to a systemic issue (Liboiron & Lepawsky, 2022; Maniates, 2001). Ethnographic research into the branded content partnerships of environmental content creators could interrogate the balance that content creators try to strike between avoiding precarity and the preservation of their core ecological values.

The effects of climate change continue to worsen year after year. As I was writing this thesis in the summer of 2023, the Earth experienced its hottest summer ever (*Summer 2023: The Hottest on Record*, 2023). It is becoming increasingly likely that the Earth will pass the critical 1.5C warming threshold, after which harms to Earth's biodiversity will become extremely difficult to mitigate, and large portions of Earth's human population will be exposed to deadly weather events (Osaka, 2023). Meanwhile, governments remain entrenched in budgetary concerns and politics (Leonhardt, 2022), and concerned individuals remain entrenched in individualized action (Liboiron & Lepawsky, 2022; Maniates, 2001). The stakes are high, *and people know the stakes are high* (Gunster, 2017), but little is being done to address the climate crisis. This is the question that environmental communicators and communication researchers face: it's not about giving people *more* information about environmental issues (Gunster, 2017), and it isn't a technological problem either. In this thesis, I have made my contribution to the field by mapping the quality of environmental communication happening on TikTok and by identifying the underlying network dynamics that influence it. With its magical personalization algorithm, and its popularity among young people, TikTok could hold

promise as a platform for catalyzing climate action. Currently, however, TikTok is not getting people the 'right' information, and this is because the architecture of the platform does not incentivize creating content with the qualities of 'good' environmental communication.

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Appendix A.   TikTok Scraper Python Code

```python
from tikapi import TikAPI, ValidationException, ResponseException
from datetime import datetime
import csv
import requests
import io
import os



api = TikAPI("[redacted]")

y = 1
query1 = "convoy+ethical+oil"

try:
    response = api.public.search(
        category="general",
        query=query1,
        # country="ca",
        # cursor=13,
    )

    while(response):
        cursor = response.json().get('cursor')
        print("Getting next items ", cursor)
        response = response.next_items()
        if response is None:
            break
            print("no more items")
        x = (response.json())
        for item in x['data']:
            y = y + int(item in x['data'])
            print(y)
            ###
            ### Author information section
            print("Author uniqueID")
            print(item['item']['author']['uniqueId'])
            uniqueID = (item['item']['author']['uniqueId'])
            ###
            print("Author Nickname")
            print(item['item']['author']['nickname'])
            authorNickname = (item['item']['author']['nickname'])
            ###
            print("Author #ID")
            print(item['item']['author']['id'])
            authorID = (item['item']['author']['id'])
            ###
            print("Author Private Account")
            print(item['item']['author']['privateAccount'])
            authorPrivateAccount = (item['item']['author']['privateAccount'])
```

```
###
print("Author Signature")
print(item['item']['author']['signature'])
authorSignature = (item['item']['author']['signature'])
###
print("Author Verification")
print(item['item']['author']['verified'])
authorVerified = (item['item']['author']['verified'])
###
### Author stats section
print("Author Heart Count")
print(item['item']['authorStats']['heart'])
authorHearts = (item['item']['authorStats']['heart'])
###
print("Author Published Videos Count")
print(item['item']['authorStats']['videoCount'])
authorVideoCount = (item['item']['authorStats']['videoCount'])
###
print("Author Follower Count")
print(item['item']['authorStats']['followerCount'])
authorFollowerCount =
(int(item['item']['authorStats']['followerCount']))
###
### Video info
print("VIDEO STATS")
###
print("Video ID")
print(item['item']['id'])
videoID = (item['item']['id'])
###
print("time published")
ts = (int(item['item']['createTime']))
ts_conformed = (datetime.utcfromtimestamp(ts).strftime('%Y-%m-%d
%H:%M:%S'))
ts_conformed_short = (datetime.utcfromtimestamp(ts).strftime('%Y-
%m-%d'))
print(ts_conformed)
###
print("Music Artist Name")
print(item['item']['music']['authorName'])
musicAuthorName = (item['item']['music']['authorName'])
###
print("Music Title")
print(item['item']['music']['title'])
musicTitle = (item['item']['music']['title'])
###
print("Music Link")
print(item['item']['music']['playUrl'])
musicLink = (item['item']['music']['playUrl'])
###
print("Duet Enabled")
print(item['item']['duetEnabled'])
duetEnabled = (item['item']['duetEnabled'])
###
print("Comment Count")
```

```python
            print(item['item']['stats']['commentCount'])
            commentCount = (item['item']['stats']['commentCount'])
            ###
            print("Play Count")
            print(item['item']['stats']['playCount'])
            playCount = (item['item']['stats']['playCount'])
            ###
            print("Share Count")
            print(item['item']['stats']['shareCount'])
            shareCount = (item['item']['stats']['shareCount'])
            ###
            print("video description")
            print(item['item']['desc'])
            videoDescription = (item['item']['desc'])
            ###
            print("video duration")
            print(item['item']['video']['duration'])
            videoDuration = (item['item']['video']['duration'])
            ###
            print("video link")
            print(item['item']['video']['playAddr'])
            videoLink = (item['item']['video']['playAddr'])
            ### download video
            get_video = requests.get(videoLink, stream=True)
            video_bytes = io.BytesIO(get_video.content)
            with open("/Volumes/Lexar/Convoy/" + ts_conformed_short + query1 +
videoID + ".mp4", "wb") as f:
                    f.write(video_bytes.getbuffer())
                    filePath = os.path.realpath(f.name)
                    filePathadd = "file://"+filePath
            ###
            row_list = [[query1, y, uniqueID, authorNickname, authorID,
authorPrivateAccount, authorSignature, authorVerified, authorHearts,
authorVideoCount, authorFollowerCount, videoID, ts_conformed, musicAuthorName,
musicTitle, musicLink, duetEnabled, commentCount, playCount, shareCount,
videoDescription, videoDuration, videoLink, filePath, filePathadd
                        ]]
            with open('TikTok_convoy.csv', 'a', newline='') as file:
                writer = csv.writer(file)
                writer.writerows(row_list)




except ValidationException as e:
    print(e, e.field)

except ResponseException as e:
    print(e, e.response.status_code)
```

Appendix B.   Keyword Combinations Used to Generate Case Study Samples

Table B.1. **List of keyword combinations used in scraper search that resulted in at least one video included in the final sample**

Heat Dome	Just Stop Oil Protest	Inflation Reduction Act
bc+heat+dome	protest+vangogh	IRA+climatechange
bc+heat+wave	just+stop+oil	biden+climate+legislation
bc+heatdome	just+stop+oil+soup	inflation+reduction+act+climate
bc+heatwave	just+stop+oil+vangogh	inflation+reduction+act+greenhouse+gases
bcheatdome	protest+soup	inflationreductionact+climate
lytton	protest+van+gogh	inflationreductionact+climatechange
oregon+heat+dome	protest+van+gogh+sunflowers	inflationreductionact+Electric+vehicle
oregon+heat+wave	soup+van+gogh	inflationreductionact+EV
pnw+heat+dome	soup+van+gogh+sunflowers	inflationreductionact+solar
pnw+heat+wave	soup+vangogh	
portland+heat+dome	van+gogh+sunflowers	
portland+heat+wave		
seattle+heat+dome		
seattle+heatdome		
seattle+heatwave		
vancouver+heat+dome		
vancouver+heat+wave		
washington+heat+dome		
washington+heat+wave		
yvr+heat+dome		
yvr+heat+wave		
yvr+heatdome		
yvr+heatwave		

Appendix C.   Final Qualitative Codebook

Note that this codebook was used as a guide during the qualitative analysis process, and not used for quantitative analysis.

#	Code name	Description and examples

No codes are mutually exclusive (except for 1C) and should be answered in the affirmative. If you are unsure or if the video falls in a gray area, do not affirm—skip that code and move to the next.

1. Pre-check

#	Code name	Description and examples
1a	Relevant	A video is relevant if it mentions anything about the event <u>AND</u> has something to do with the environment. Videos must be in English for thorough analysis to be considered relevant. - A video that meets only one of these criteria must be discarded. - Not relevant example: a video is about the Inflation Reduction Act, but only talks about the bill's medical policies. Discard. o Regarding the Inflation Reduction Act, there is a low bar for qualifying as relevant. If the author mentions "climate change" or other environmental policy in the bill even once, it is considered relevant. - Not relevant example: a video is hashtagged "#heatdome", but the video is about something unrelated
1b	Reaction video	A video of a user reacting to content. If it is a reaction video, the focus should primarily be on the person reacting, while still considering the overall message. - Reaction video example: A video plays a 5 second climate skeptical soundbite from a Fox News host, then the video author reacts in disbelief. In this case, the coder should proceed to code for the original portion of the video. - Reaction video example: Author reacts to a TikTok text comment
1c	Repost only	A video is considered 'repost only' if is composed entirely reposted/unoriginal content with nothing added that significantly changes/adds meaning. If it is a repost-only, it is not relevant for study and should not be considered for further analysis.

		- A reposted video of JustStopOil protestors SoupGate with a single caption added that reads "Wow!!!" is considered re-post only, whereas a caption that reads "The painting is worth $100 million and is protected behind glass" adds enough meaning to the original video to be included for further study. - NOTE: This is the only mutually exclusive category. A repost-only video must also be marked Not Relevant. The purpose of breaking this category out is to track the prevalence of repost-only videos relative to original videos.

2. Emotions, delivery, tones & affect

2a	Positive affect	Strongly positive/pleasant feeling after watching the video - May coincide with a positive emotion, like 2h Happiness - Note: Many videos will not have strongly negative or positive affect. In this case, do not code for either. - Note: Try your best to check bias at the door—this is about the affect conveyed by the author, not about how it makes us (the coders) feel.
2b	Negative affect	Strongly negative/unpleasant feeling after watching the video - May coincide with a negative emotion, like 2f Anger - Note: Try your best to check bias at the door—this is about the affect conveyed by the author, not about how it makes us (the coders) feel.
2c	Humor, Sarcasm, Satire, Mocking	Mocking tone, making light of a situation (good or bad), satire, sarcasm, silliness or prominent inclusion of memes. - Over-the-top performance of emotion to the point of being ironic or unbelievable - Example: "It's supposed to be 114 degrees F tomorrow, which sounds REALLY fun!!" - This category will be obvious. If you are unsure or if the humor is quite subtle, do not select this category. - This category will likely coincide with another emotion, as humor is often used to convey anxiety, anger, etc.
2d	Serious, earnestness	Straight-faced, matter-of-fact tone, earnestness, showing strength, stern or as if speaking from the heart. - Often marked by directness; not mincing words - Seriousness and earnestness can be either positively or negatively affective - Expect to see this in impassioned speeches (i.e. Thunberg) or other activist movements, as well as in political videos
2e	Anxiety/ worry	Nervousness, stress, uncertainty or pessimism about the future, an overwhelming sense of doom or dread.

		- Will often coincide with an unspecified call to action (i.e. "we need to do something about climate change")
2f	Anger	Outrage or active disapproval, often with an elevated level of energy. - May be direct ("Those JustStopOil protestors are fools") or indirect ("I cannot BELIEVE the government right now") - Pay attention to use of specific language and emojis, i.e. "protestors *vandalize* painting" (anger), as opposed to "protestors *throw soup at* painting" (neutral)
2g	Sadness/ grief	Melancholy, perceived loss, terribleness, or physical symptoms (i.e. crying) due to a negative-affect event (i.e. terrible news)
2h	Happiness	Good fortune, relief, gratefulness, or extremely positive affect. - Good news, thankfulness - "I'm so happy to have finally found an A/C unit at Costco," - Schadenfreude

3. **Theory of change: what does the author think needs to be done?**
   Must be an explicit assertion, opinion or argument. For instance, objectively explaining what the IRA will do will not fulfill either of these categories, but saying '*we need the IRA to solve climate change*' (systems change; keyword: 'need') or '*the IRA doesn't address people wasting water by watering their yards*' (systems change AND individual change; keyword: 'wasting') will qualify. Watch for keywords "*We need*…", which will likely be followed by the assertion.

3a	Political / systems change	Activism, encouraging of democratic participation, or systems critique. - Encouraging organized collection action (protest, boycott, etc.) - Encouraging voting; supporting specific candidates, parties, or policies - Attributing the cause of an issue to a system or large entity (i.e. capitalism, an oil company, education systems) - Might be vague (i.e. "We need to replace capitalism", or "we need to ban cars")
3b	Individual / lifestyle / behavior change	Sustainable consumerism, reducing personal consumption, personal or family behavior change, or seeking more information - Call to purchase or stop purchasing a specific product or service - "Here's the type of plastics you can recycle and the kinds you can't" - "Follow X account for more information"

		- Encouraging behavior change i.e. driving less, taking shorter showers, eating less meat

4. Miscellaneous

4a	Skepticism	"Classic" skepticism or denial about anthropogenic climate change or other environmental issues - "The earth is not getting warmer", "we've always had heatwaves"

4b	Outside Sources & References	Specific mention of an outside source *presented by the author as being reputable* (regardless of their actual qualifications), whether verbally expressed, featured in the video itself, or linked somewhere. If possible, write the name/hyperlink of the source directly in the Excel sheet.
		- The source must be findable, actionable and (at some point) accessible reference. "Experts say" does not count. "A recent article in the NY Times" including the article's title is the bare minimum, because a viewer would at least have a shot at finding the article with the provided information.
		    o A screenshot of a weather app is not enough—the exception is if there was a reference to a specific news article or government report about the weather event.
		    o "Link in bio" is enough to fulfill this requirement. As coders we do not have access to these links, but we assume that it was accessible at some point.
		- May include news articles, research papers, or individuals presented by the author as being reputable.
		- May be a reference to another TikTok account along the lines of "Follow X account for more info". "Outside" means any source besides the author.

5. Repurposing

5a	Repurposed content: from news, academic source or govt. source	Visuals (footage, images, screenshots) or audio <u>most recently</u> taken from a news, academic or government source <u>external</u> to TikTok - Will often be soundbites from news footage, screenshots of news articles or statistics, or photographs of news events

		- TikTok authors usually do not credit the source, but this should be counted anyway if you suspect the content is not original - Screenshots of weather apps do not count for this code.
5b	Repurposed content: from TikTok, social media, others apps, or elsewhere on the internet	Visuals (footage, images, screenshots) most <u>recently taken</u> from elsewhere on TikTok or social media - Will often be memes, viral videos or soundbytes from other regular social media users - Recycling of SoupGate footage should be marked as being from social media, unless it was clearly taken from a news site (i.e. a screenshot from a news site using an image of the protest), or the original video footage of the protest now stamped with a news watermark (in these cases, code the videos as 5a). - Example: Screenshots of Twitter posts or from weather apps - Note: Repurposed soundbites not from the internet (i.e. from a movie) should be excluded from this code

6. Formal elements

If this is a reaction video, mark the following criteria according to only the original footage and any additions that significantly alter the meaning of the repurposed footage. If the footage is entirely repurposed from somewhere else, mark only according to any additions (for example, a repurposed news video of Joe Biden delivering an address would <u>not</u> be marked for 6d 'tripod camera', as this was part of the repurposed footage. Similarly, an average user reposting a video that includes a news watermark would not be marked for 6a 'prominent branding'. If a video only contains recycled footage without any significant alterations, go back to code 1C and mark Not Relevant.

6a	Prominent branding	Author branding is prominently featured in the video - Can be visual (i.e. news channel logo watermark) - Or aural (i.e. "Hi all, this is The Garbage Queen") - The TikTok watermark and "@username" watermark does not count for this category
6b	Special FX	TikTok Visual filters, voice filters, and other special effects added in the in-app editing process - "greenscreen" effect which places the author in front of other content - Words popping on/off the screen (not regular captions) - Overlaying an image or 'reply to author's comment' box on top of video - Note that "conversations with self" should not be considered as having a 'special effect'
6c	Selfie camera	Recording oneself, often hand-held. Includes 'vlog-style' video in which the author speaks directly to the camera.

		- Does not necessarily need to be smartphone footage nor hand-held. Setting the phone on a desk or other ledge is common and should also be coded for 6d Tripod camera
		- Only code for selfie camera if you can reasonably conclude that the author recorded this themself. Beyond the obvious outstretched arm in video, some other key tells are:
		    o Reaching to start/stop recording
		    o Camera very close to author (often to read script from their phone screen)

6d	Tripod camera	Camera is perfectly stable - Including webcam/Zoom footage - Including news camera footage - Including 'camera sat on desk' stabilized footage
6e	Author in video	The author's face, voice or other part of the body is in the video
6f	Production equipment in shot	Lights, headphones, microphone, or other production equipment visible in shot
6h	No original voice	There is no <u>original</u> voice in the video, may be only captions - There may be music, sound FX, or repurposed soundbites
6i	Robot voice	Robot voice narration generated by TikTok's text-to-voice service
6j	Music	Music is present for all or part of the video