

Polarisation and echo chambers?

Making sense of the climate issue with social media in everyday life

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ABSTRACT

This article analyses how people use social media to make sense of climate change, exploring climate issues as part of everyday communication in media-saturated societies. Building on prominent themes in the environmental communication literature on social media, such as mobilisation and polarisation, we respond to calls for more qualitative and interpretative analysis. Our study therefore asks how people use social media in everyday life to make sense of climate issues, and it expands on previous findings in the field through a qualitative typology of everyday social media use. The empirical data stems from in-depth interviews with Norwegians who are engaged in climate issues, with informants ranging from activists to declared sceptics, although we find widespread ambivalence across group positions. Our findings contribute to disentangling contradictory findings in the field through a discussion of how climate change is part of everyday communication.

KEYWORDS: climate change, social media, qualitative interviews, sense-making, Norway

Introduction

From Greta Thunberg urging us to “listen to science” on Twitter, to the sharing of conspiracy theories on YouTube, social media have become part of how people engage with climate change. Such engagement could find many different expressions, related to affordances of various social media platforms, via the experiences and interests of diverse users, and to the complexities of climate change as a scientific and societal issue. Social media could function as a double-

edged sword, enabling both communication with large publics and rapid spread of misinformation – at the same time and through the same platforms (see van Dijck & Alinead, 2020 on the Covid-19 pandemic; Rosenthal, 2020 on science videos). As the field of climate communication holds a long-running interest in understanding the role of social media, this article contributes to the extant literature with a qualitative study of sense-making as part of everyday social media use, expanding on functions already defined in the literature.

A starting point for our study was a situation that arose in the Norwegian public debate in early 2020, when seemingly entrenched Facebook warfare broke out between two groups engaged in climate issues. First, a group that described climate action as hysteria got traction, but soon a second group formed in reaction to this specific initiative, and to the broader inclination to question climate science. In a country with merely 5 million inhabitants, each Facebook group gathered more than 100,000 members in few weeks in February 2020, and the situation received attention from national news media, who reported that a “full-on climate war” was taking place on Facebook (NTB/Aftenposten, 2020). This example could be taken to illustrate that social media fuel distrust and divides on contentious political issues. As we demonstrate, existing research foregrounds a polarised and compartmentalised landscape, with social media used for spreading information and mobilising supporters. But such research tends to focus on professional actors and influential users. Analysis of general experiences with engaging in climate-related social media groups could provide a more nuanced picture.

Our interest is grounded in the need for qualitative and interpretative approaches to social media regarding climate change (Pearce et al., 2019; see also Anderson, 2017), and the broader need to understand how people relate to the climate in the context of their everyday lives (Norgaard, 2011). Those everyday lives are saturated by digital media, with social media as drivers of information, debate, and personal communication, in an amorphous realm where discussions of climate change abound (van Dijck, 2013). Social media affordances such as personalisation and algorithmic curation can potentially facilitate and strengthen – or obscure and hinder – connections between climate information and everyday experiences, relating to how variously situated people understand the world they inhabit (Berger & Luckmann, 1966). On this basis, we pose the following research question:

How do people use social media when making sense of climate issues in their everyday lives?

Our approach situates social media use as part of everyday communication amongst general social media users, as opposed to focusing on professional actors, specific events such as a climate summit, or specific debates on selected climate issues.

We conducted a qualitative interview study with Norwegian citizens engaged in questions regarding climate change, taking a cross-media perspective and paying attention to processes of understanding and sense-making (Dervin, 1998;

Jensen, 2017). Our sample includes informants who use different social media in various ways, although Facebook is an important platform for many of them. We recruited with a starting point in Facebook groups arguing over “climate hysteria”, based on the assumption that we could encounter strong positioning and clear oppositions. We did find such tendencies, but as our analysis shows, we also found ambiguity and dynamic positions. Our informants shared experiences that illustrate how and when social media might facilitate construction of insulated groups, illustrating both constructive and destructive aspects of such group communication, and some also showed awareness of the dangers of polarisation and interest in other views.

The analysis is anchored in previous findings on climate change and social media use, which we sum up as highlighting 1) personalised information spreading, 2) in-group mobilisation, and 3) polarised debate and tendencies of echo chambers. Going beyond influential communicators and online content analysis, we provide nuance to these categories with a qualitatively grounded typology of five processes of sense-making of the climate issue through social media use: We demonstrate how informants reflect on dangers of polarisation and echo chambers as they 1) filter information and 2) navigate group positions; how 3) information spreading is presented as reactionary, against perceived misinformation; and how 4) in-group mobilisation plays out across and beyond platforms from a grassroots perspective. Finally, we suggest a fifth category, attuning beliefs emotionally, which describes the emotional aspects of developing and expressing understandings of the climate that correspond with authenticity ideals and with ethical and political beliefs.

Highlighting the value of user studies, our findings shed light on key difficulties in communicating about and understanding climate change. Further, we contribute explication and nuance to findings in the field through a discussion of how climate change is part of everyday communication in a media-saturated society.

Literature review: Climate change and social media use

Much like media and communication studies in general, climate communication for a long time saw a bias towards studies of senders or messages. This bias lasted even into the era of digital media, often heralded for its participatory and interactive features. Several scholars have pointed to the lack of research that tackles the question of people’s interpretations. Schäfer (2012), for instance, in an early review article, called for broad approaches to understand the online climate debate over time and across the Internet, as part of social and cultural contexts.

The calls have been heard, and the research literature on social media use and climate change is rapidly growing. A review found early evidence to suggest that social media encourage greater knowledge, mobilise activists, and form a space for discussing climate change as negative for society (Anderson, 2017). The same review also showed social media as providing “space for framing climate change sceptically and activating those with a sceptical perspective of climate change” (Anderson, 2017: 12). While focused on whether social media use has measurable effects on behaviour and knowledge regarding climate issues, the

review's conclusion underlines the potentially polarising outcomes of people's uses of social media in climate communication.

Research on social media and climate communication has primarily focused on how political actors, activist groups, and influential individuals employ social media (Hestres, 2014; Katz-Kimchi & Manosevitch, 2015). Studies have tended to concentrate on one social medium, as opposed to cross-media use, and that one social medium is often Twitter (Pearce et al., 2019). Recurring findings point to information spreading, and to a lesser extent mobilisation of supporters (Boulianne et al., 2020; Hestres, 2014; Hutchins, 2016; Katz-Kimchi & Manosevitch, 2015). Quantitative analyses have found polarised networks of sceptics versus activists, and to the extent that such studies find exchanges or connections between opponents, they tend to report high levels of negativity (Williams et al., 2015; but see Arlt et al., 2019).

In their meta-review, Pearce and colleagues (2019) confirmed these tendencies: Scholarship on climate and social media use is predominately based on quantitative mapping approaches or analysis of professional communication and gives considerable interest to polarisation. Qualitative approaches do exist, and typically as analysis of online comments in specific debates to get at the discourses on climate and environmental policy issues (e.g., Olausson, 2018). Consequently, there is a need for further studies of social media platforms beyond Twitter and deeper analysis of issue publics beyond quantitative "big data" (Pearce et al., 2019) or textual analysis of online content.

Moreover, there is a danger that research has polarisation "built in" when coding messages and grouping users (Pearce et al., 2019: 7). This might add to the impression of trench warfare between opinionated users as the prevalent image of climate communication in social media. This is problematic, given that the general literature on social media and political communication has recently debunked crude diagnoses of filter bubbles and echo chambers (Bruns, 2019; Fletcher et al., 2020). It is worth underlining that bringing out clear alternatives, describing opposing positions, and engaging with controversies in other ways are crucial to public policy-making on climate issues (e.g., Carvalho et al., 2017). More fundamentally, in-group discussions among like-minded persons could be seen as a needed step in opinion-formation for public engagement (Pearce et al., 2019). This is highlighted in key contributions to public sphere theory – such as in Habermas's (1996) notion of porous borders between parts of the public sphere, in Fraser's (1990) notion of counter publics, as well as in the more recent, extensive literature on deliberative systems where unstructured communication of different kinds in diverse settings in the peripheral public sphere is seen as a prerequisite for the system's democratic function (e.g., Eрман, 2016; Holst & Moe, 2021). As such, in-group discussions and opinion-building should be seen as key for mobilisation in support of climate action – not a priori as a phenomenon that supports extremism or hinders a well-functioning public debate.

There is, then, a need for further research on the complexities of climate issues in social media, particularly with attention to social and cultural contexts. Studies taking non-professional users as a starting point are particularly in demand.

Such studies should seek to scrutinise whether the key findings of information spreading and mobilisation also apply beyond influential communicators and critically consider presumed tendencies of polarisation and echo chambers. On this basis, we propose an approach to climate and social media grounded in everyday media use, as accounted for below.

Approach: Sense-making in everyday social media use

Our approach is inspired by scholarship in climate sociology and human geography exploring how climate change is experienced by people in their everyday lives, with attention to different contexts and socially grounded understandings (Bhatasara, 2015; Mahony & Hulme, 2018; Norgaard, 2011). Our primary interest in this study is not everyday situations surrounding social media use, nor the relationship between social media and specific theories of everyday life (e.g., Bakardjieva, 2005; Thorhauge & Lomborg, 2016; Ytre-Arne, 2023). Instead, we emphasise how sense-making regarding the issue of climate change takes place as part of social media use that is routinised in the daily lives and communication practices of people in media-saturated societies. We therefore draw on theories of sense-making as processes (Dervin, 1998), combined with a cross-media approach to everyday media use (Lomborg & Mortensen, 2017; Sandvik et al., 2016; Schrøder, 2011).

Sense-making is a concept that has been central to scholarship in several fields and disciplines, including organisation studies (Weick, 1995), information studies (Dervin, 1998), and crisis communication (Odén et al., 2016). Different strands of sense-making scholarship share an interest in how people interpret cues from shifting contexts and manage uncertainty and contradictions. We particularly draw on Dervin's understanding of sense-making as ongoing processes of knowledge construction. Dervin developed what she calls a "sense-making metaphor" of "human beings traveling through time-space, coming out of situations with history and partial instruction, arriving at new situations, facing gaps, building bridges across those gaps, evaluating outcomes and moving on" (Dervin, 1998: 39). From the various elements in the metaphor, we particularly emphasise how people use social media to fill gaps in knowledge or build bridges between climate issues and aspects of their identities, working with categories in sense-making theory such as emotions, attitudes, perceptions, and narratives in conditions of uncertainty. Following the methodological implications of the approach (Naumer et al., 2008), we are mainly interested in practices and ongoing processes of communication.

Methodologically, our approach is informed by qualitative media use and reception studies, stressing that media consumption is a social practice deeply affected by users' everyday lives and social situations. Working from the tenet that reception cannot be inferred from content, as has been extensively documented and theorised (Schrøder et al., 2003), we consider how climate change is open to ongoing processes of interpretation. Our ambition is not to look for causality between attitudes to climate change and specific modes of social media use. Rather, we see people's positions on climate issues – and ways of commu-

nicating about these online – as evolving over time and ongoing in everyday communication.

We take a cross-media approach, in which social media is studied in connection with other forms of media use and activities in the lives of different users (Lomborg & Mortensen, 2017; Schrøder, 2011). Rather than considering predefined social media platforms, we ask how each individual uses various media in combination to follow climate issues in relation to other interests and everyday practices. Here, our approach diverges from other contributions to grasp everyday social media practices (e.g., Bruns & Moon, 2019 on Twitter in Australia).

A few other studies have applied similar perspectives to climate issues, cross-media use, and sense-making. Jensen (2017) drew on reception analysis and focus groups to discuss how people engage with climate information across the digital environment, revising a model (“the world in the head”) for how media users interpret news in accordance with understandings of how the world works. This study concluded by underlining the severe difficulty in making sense of climate change: “The focus-group interactions suggest that climate change may be incommensurable, not only with established media formats and genres, but also with common frames of human cognition and communication” (Jensen, 2017: 451). Another focus group study has drawn on a large qualitative dataset and a process in several steps to outline the relationship between interpreting climate information and making behavioural changes (Happer & Philo, 2016). Likewise, Olausson analysed citizens’ interpretations of climate through media use in general (Olausson, 2011) and more specialised investigations of a particular climate debate on Facebook (Olausson, 2018). Both these studies drew on social representations theory to analyse how people socially construct interpretations of climate change through media use, but with less media-centric approaches.

In our analysis, we build on the literature on social media and climate change reviewed above and explain how processes of sense-making are part of the functions highlighted in existing research, such as information spreading. We have worked analytically going back and forth between the literature, the interview material, and discussions in the project group, defining preliminary meanings and considering their salience and relevance across the material. As such, our fundamentally interpretative approach entails several iterations where we worked abductively to produce a typology (Blaikie & Priest, 2017). Specifically, the abduction entails both induction and deduction in several steps: We moved deductively from the previously defined categories of uses (information spreading and support mobilisation) to our data, but lowered the level of abstraction to inductively develop “sub-categories”, which we again deductively sought to verify in the dataset as a whole.

Case and data: Interviews with Norwegians engaged in the climate issue

Our case country, Norway, is among the world’s largest exporters of fossil fuel and is, predominantly for that reason, a wealthy country. Comparative political science has traditionally described Norway as a Nordic welfare state, with

widespread political participation, high levels of trust in institutions, and high electoral turnout (Esping-Andersen, 1990; Hilson, 2008). Similar to other Nordic countries, Norway has a multi-party parliamentary system with traditions of cross-party compromise and consensus-oriented politics (Knutsen, 2017), and in contrast to its neighbours, Norway has seen a comparatively non-aggressive branch of right-wing populism integrated in the party system (Jupskås et al., 2017). As elsewhere in the Nordic region, the country's media system is characterised by proactive state interventions operating at an arm's-length distance and a popular publicly funded broadcaster. But Norway stands out with a fine-masked structure of local and national newspapers with a very egalitarian readership, and a high penetration of information and communication technologies (ICTs) in general (Hallin & Mancini, 2004; Syvertsen et al., 2014), also mirrored in widespread reliance on the smartphone as a main apparatus for media use and high levels of social media use across the population (Aalen & Hoem Iversen, 2021; Newman et al., 2022).

Concerning attitudes towards climate change, survey data studies have found Norway to resemble other countries, for example, with more widespread scepticism among conservative men (Kränge et al., 2019), and as linked to right-wing political views, anti-elitist attitudes, and distrust in environmental institutions (Kränge et al., 2021). Worry about climate change is relatively stable, with around half the population expressing some concern (Gregersen, 2022). We assume that the sum of these features makes Norway a case with “strategic importance in relation to the general problem”, meaning the country is a “critical case” to study (Flyvbjerg 2006: 229).

Our study developed from a former, larger, and more general study of Norwegians' public connections, of which climate appeared as a particularly central issue integrated in people's everyday relations to society (Moe et al., 2019). Building on insights and approaches from this study, our aim here is to probe further into how people may make sense of the climate issue through social media use, and thus provide for a qualitative, immersive concretisation of the dynamic qualities of some specific and socially situated experiences and practices. Given this scope (see Crouch & McKenzie, 2006), a small sample of informants representing various “cases”, or forms of social media use in climate engagement – be it either in the form of having posted and reacted to content, participated in interest or discussion groups, or engaged in various media activities – was found most fruitful. To secure an adequate sample for content validity, we combined snowballing methods for recruiting informants who had shown some level of engagement regarding climate issues in social media, with recruitments based in advertisements in various climate-related Facebook groups, selecting groups that spanned both scepticism and activism, humour, and fact-checking. We managed in this way to recruit informants from various relevant social settings, from younger and older generations of (social) media users engaging in climate issues. The present sample consists of fourteen informants – eight men and six women – from various places in Norway and aged 19–74 years old when interviews were conducted. Despite variations in age, participants tended to

share some sociodemographic features: Except three informants who described themselves as unskilled or having no higher education, most had some form of higher educational background (of which 5 had a master's or equivalent degree, 2 had a PhD, 3 had a bachelor's degree, and 1 was a first year student). Most (but not all) lived in cities, and only a few had minority backgrounds.

In-depth interviews were conducted from April to September 2020 by Synnøve Lindtner, either face-to-face or on Zoom, depending on geographical location and restrictions due to the Covid-19 pandemic, and they lasted between 1 and 1.5 hours. The interviews were conducted at a time in which the outlook on the pandemic situation was relatively positive in Norway, so that Covid-19 did not fully eclipse other issues on the news agenda, although it did of course provide a backdrop for the interview situation. Climate issues had been receiving growing attention in Norwegian media for some years at the time of the study, with particularly intense discussions on wind turbines as a source of energy, with local protests (Totland, 2021) and some recurring debates on the oil industry. The interview guide was semi-structured and included general questions about the life situations of the informants, their everyday media use, and social media as part of these cross-media user practices, which further let us focus on uses of social media for climate change information. Taking such a broad non-thematic approach to each informant's interests, concerns, and political engagement was part of the inductive, explorative research design, and it allowed us to ease into the social media engagement with the climate issue on the informants' own initiative in the interview setting. The guide, however, included several prompts to be used for further discussion of climate change and social media use. The data collection complied with privacy regulations as advised by the Norwegian Centre for Research Data (NSD). The interviews were conducted and transcribed in Norwegian, and we collectively analysed them in a process as described above. For this article, we translated the transcribed material into English.

Analysis: Making sense of climate change with social media

Our interview material gives an overall impression that climate change is perceived as a demanding topic. The landscape of information is vast and complex, and it can be experienced as polarised and vulnerable to bias and misinformation. These difficulties refer in part to complexities of climate science and policy, to the integration of climate concerns into other sectors and debates in society, and to how discussions evolve over time. While the climate issue could perhaps previously appear as an isolated question about whether climate change is the result of human activity or not, it is now thoroughly interwoven with all kinds of policy domains and aspects of everyday life, forming an ongoing "climate confusion". This is illustrated in the following quote:

I guess I spent some time getting a grip on the problem – had to dig a little deeper. And for that we have this amazing tool, on the Internet, called YouTube [laughs]. So, on YouTube and Google I managed to find information that gave me enough knowledge to establish what I would call... a perception... I

can't call it the one right answer, that would be wrong. But rather... my own perception that this was an important topic to focus on, to be engaged in. Because if you care about nature and people, it is natural to stand up for the values that you love. (Viggo, 67, retired)

Media use – in many ways and forms – is central to how people navigate this informational landscape. As our study takes a cross-media perspective, our interview material encompasses reflections on how informants approached climate change with different forms of media use in daily life, from specialised science reports, through mainstream news, to fiction.

All our informants used social media to some degree, many daily and often, particularly Facebook but also other platforms. Some of our informants also used social media for activism and mobilisation, but the informational modes of use – getting news and following political discussions – were prevalent across the informant group.

The informant quoted above, Viggo, painted a picture of how he needed to actively define an understanding – his own understanding – of climate change, in concurrence with values and beliefs of importance to him, and how YouTube helped him in this regard. He described a process in which he dug deeper, considered the perceived relativity of climate information, and gradually adapted his knowledge and views. His story can be understood in light of Dervin's sense-making metaphor of reaching a gap and building a bridge, with resources such as perceptions (which Viggo framed as being under construction and characterised by uncertainty) and values (that appear more stable). In this process, social media (in which we here include YouTube) seem to have a series of different uses.

In the following, we discuss our findings and build on key insights from previous studies of a polarised and compartmentalised landscape, with social media used for spreading information and mobilising supporters. We present a typology of five processes that are part of how our informants use social media to understand climate change: filtering information, navigating group positions, reacting to misinformation, mobilising co-activists, and attuning beliefs emotionally. We relate each of these to the research literature while discussing them as expressions of sense-making. Our argument is that filtering information and navigating group positions bring nuance to the question of what polarisation looks like “on the ground”; that reacting to misinformation and mobilising co-activists illustrate different sides to information spreading and mobilisation; and that attuning beliefs emotionally tentatively expands on previous findings. As our analytical categories are products of a qualitative study, they are not intended to be exhaustive or mutually exclusive, but to constitute a qualitatively grounded typology in dialogue with the research literature.

Filtering information

The first use of social media found in our data speaks to the way people tackle the polarised and controversial dimensions of climate debate. This is social media used for filtering and sorting through information: to navigate the abundance of

available news and perspectives on climate, bypass what they perceive as misinformation and polarised discourse, and get to what they define as important and trustworthy information. Social media serves this need through affordances that allow for personalised and curated news streams where certain sources and types of information are prioritised, according to user preference as well as algorithmic curation. Such filtering of information is an ongoing process in which conceptions of trust are utilised to prioritise certain sources or types of information, building on this selection to expand one's understanding, which could again in the future affect who and what to trust.

Aksel, a 44-year-old IT expert and climate change activist, talked about how he deliberately used his network on Twitter and Facebook to filter news sources based on relationships of trust, expressed through the social capacities of social media:

I try to spot what the people I trust believe [...] People that I know have a clear, reality-based approach to facts and reality, not so much emotions but facts [...] To just look at the news, or what is discussed there... when the issue is so polarised, I feel that is not such a good idea either. I sort of miss the good filters, so I try to find some good filters, in the form of people I trust who can help me filter...

To filter information is to actively seek content you find reliable, from trustworthy sources and opinion-leaders, by rigging social media in a way that exposes you to your preferred kind of sources, a process that is also amplified by algorithms. It is worth keeping in mind that this experience is described within a media landscape (the Norwegian) often held to be comparatively diverse, with strong, editorially independent news providers. Several of our informants still got their information on climate through special-interest groups on Facebook and by following pages tied to selected institutions and professionals. For Aksel, the editorial filtering in the news was not sufficient to trust the information provided there, so he instead drew on social media affordances to follow who he presumed are trustworthy people with a worldview akin to his own.

Filtering information through social media use can appear as an efficiency strategy, as Aksel indicated, but many of our informants said that they spend a lot of time comparing and reviewing the information they get. Filtering information with social media is a work-intensive sense-making process.

There is a notion of informational quality, recurring in several interviews, to which the idea of “facts” is central – it is important to know about the facts of climate change and find the facts in the biased information landscape. Aksel contrasted a fact-based view of reality with the notions of emotion and polarisation. Similarly, Trude, who works with energy technology, referred to facts as what she wants to spend her time on – and she also added that she spends “a disproportionate amount of time” on this. Following, for example, posts from research organisations, she also took a critical view of social media, and described how she eventually found Twitter lacking and annoying:

I used [Twitter] as an information channel for quite some time. Just to get a stream of information the whole time... [...] But it lacks nuance and is so

polemical... it doesn't give me anything. I just feel pulled into these negative discussions, and would rather spend my time on facts. But of course... when the same discussions come into the media at large, I might engage with them. But then you would want to have long, well-founded responses and a better understanding of the views, as compared to quick retorts on Twitter. Not my thing. (Trude, 44, energy consultant)

Both Aksel and Trude framed polarisation as a problem but situated the primary expressions of polarisation in different parts of the media landscape. For Aksel, polarisation occurs in mainstream news, whereas his filtering of trustworthy sources in social media gets him the facts. Trude described herself as a “news junkie”: For her, the character limit and polemical tone of Twitter retracts from the more developed arguments found in editorial media – while Facebook remains a way of getting input from credible sources.

These illustrations add nuance to previous findings of a polarised communication landscape: The informants appeared aware of the perils of misinformation and hyperbole. We cannot rule out either that some overestimated their competences and ability to manoeuvre this landscape (see Selm et al., 2019 for a discussion of the effect of education in this regard), or that some informants moved towards more radical positions supporting or opposing climate action. What our interviews did bring out was sense-making processes where informants described different ways to use social media to limit such problems while expanding their understandings of climate issues. They presented themselves as concerned with polarisation and with normative ideas of information value, and they brought these ideas with them when developing understandings of climate change and adapting their uses of social media.

Social media as a tool for filtering information was a recurring theme across the informant group, and several also explicitly mentioned the role of algorithms in this filtering. For some, filtering was presented as a stand-alone feature, in the sense that their involvement in the climate issue stopped after being informed. For others, the filtering was closely tied to other uses of social media. In these cases, a key insight is that the climate issue is vulnerable to polarisation, and that polarisation is something to avoid, which also impacts how people negotiate source credibility and community belonging, as we look at in the second identified kind of use.

Navigating group positions

The second sense-making process regarding social media and climate change also speaks directly to the topography of the information landscape: how to navigate between different positions, quickly evaluate source credibility, find relevant discussion partners, situate oneself, and identify potential allies and adversaries. Participation in social media groups was considered particularly relevant to serving this need, working almost as a kind of operational sense-making device or heuristic for quick interpretations. Facebook groups, especially, represent a tool for issue publics (Converse, 2006; Pearce et al., 2019): easily accessible and

helping with navigation of information while serving as arenas for debates. But at the core, these groups offer some form of recognition or sense of community. As Facebook use has been widespread in the Norwegian population for several years (daily use reported around 65% across age groups every year since 2016; *MedieNorge/SSB, 2022*), we find that Facebook groups particularly help in managing uncertainty in an unruly climate debate.

An important backdrop for the relevance of Facebook groups is the experience, mentioned by several informants, that climate could be difficult to talk about face-to-face in everyday settings, whereas social media allowed for participating in a community of like-minded people. Our informants told us about not knowing how to address the issue without insulting other people's political beliefs, or boring others with their lifestyle choices, made more difficult face-to-face but easier online. An example was the discomfort of contributing to heated discussions at family gatherings, arguing with the old uncle who rejects human-caused climate change, and feeling impolite for ruining the friendly mood around the dinner table (compare with *Thorbjørnsrud & Figenschou, 2022* on the issue of immigration policy). In social media, however, they found an extensive array of groups that were devoted to the issue, where they would bypass any accusations of going on about it too much and discuss with like-minded people. As Rannveig, a 67-year-old architect said, "That's what Facebook is for [laughs]: You find your fellow partisans".

On the one hand, this fits squarely into impressions of the encapsulating affordances of social media, facilitating the construction of echo chambers. The withdrawal from engagement with controversies and opposing views can certainly represent a problem for contested issues such as the climate. On the other hand, it is important to underline that none of our informants appeared shielded from opposing perspectives, based on their overall media diets. However, at least for some, the use of social media for navigating group positions led to uncertainty and doubt about their informational landscape, prompting questions about what they would miss. Heidrun, a 45-year-old local Green Party politician, admitted that her Facebook engagement takes place within what she calls "an echo chamber of environmentalists":

Am I part of a Green Party bubble on Facebook, or is everyone catching on to this enormous change that is taking place? To me it's such a big part of my daily life, I wouldn't know, with all the media but also direct contact with politicians, interest groups and so on... how much of that is in the media... Because I am in an echo chamber of environmentalists, right?

She continued by admitting that the "lack of friction" is problematic. Ultimately, her experience of the "bubble" has not made her question her position on climate change as such, but has left her wondering about the status of the issue in society at large. She also had trouble separating mediated information and social media use from perspectives and information she encountered through face-to-face meetings and other aspects of her political activity, pointing to the close integration of social media into sense-making processes of climate change.

Some other informants also mentioned these negative aspects, noting how debates can seem biased or appear overblown.

On a more general level, the upside of finding like-minded people who can be trusted to share “useful” facts and information, and who offer a space for constructive exchange of comments and opinions for community building, was widespread in the informant group. We would argue that it is helpful to think of such uses as gap-filling, as noted by Dervin (1998). The point to stress here is how our informants appeared highly digitally literate, well-aware of the challenge with a lack of diverging opinions and views in social media. This does not mean that social media cannot contribute to polarisation on contested issues or to encapsulated group construction. Yet, when we worry about such potential, we should be careful not to ignore the agency, negotiations, and reflections of the users in question.

Reacting to misinformation

While the former two uses of social media for making sense of climate change address previous studies’ focus on polarisation, we now zoom in on the idea of social media for information spreading. As noted above, this tends to be described as a key activity by professional or influential users, but our data give a different perspective. We find that information spreading was considered part of an ongoing effort to actively contradict perceived misinformation, for instance, by responding to posts and taking part in debates. It is important to underline that we do not know what the informants define as misinformation, and to what extent the term is used to label opponents’ legitimate claims. Rather, it is the representation of their own activities as a reaction to perceived misinformation that we highlight. This finding resonates with a survey study pre-dating social media, which found that third-person effects, as well as the perceived hostility of media coverage, were related to behaviour that aimed to correct what respondents considered potential biases (Rojas, 2010).

In our findings, the interactive capacities of social media platforms are in focus, enabling correction, clarification, and discussion. Several informants spent time looking for what they perceived as misinformation shared in debates about climate issues in social media, and they made it a priority to provide information they believed to be missing or needed, contradict false claims, or ask pertinent questions. Our informants portrayed such activities as contributing to a better shared understanding of the issue, but it seems probable that engaging in factual discussions is also part of individual processes of adjusting and reinforcing views.

For instance, Gunnar, a 43-year-old IT consultant, spent time in a Facebook group in which car-free streets in his local community were discussed. When asked about his role in the debate, and why he engaged, Gunnar argued: “I want to bring the debate on a factual track [...] and clear out pure factual errors”. As opposed to notions of compartmentalisation, many informants actively sought debates and people they disagree with online, with the purpose of spreading truth and facts.

Again, on the face of it, this seems to mirror professional communicators' use of social media for information dissemination. Yet, several informants described this kind of engagement as *reactive*, rather than active. They spent time in such debates, but primarily as observers who only intervened to “enlighten” the discourse. Aksel, for instance, argued that the only times he posts something is when he must react to something: “I enter discussions, give answers, react on things, eh, yes, I am more reactive than active, you could say [...]. Someone on the Internet is wrong, I have to correct them [laughs]” (Aksel, 44, IT expert).

Reacting to misinformation illustrates a clear positioning: Compared with the overall informant group, these informants were not particularly ambivalent. At the same time, it is worth noting that while the navigation of group positions discussed above might facilitate separation from adversaries, the correction of misinformation is about the opposite – actively seeking out opponents to engage in (heated) information exchanges.

A tendency found within our material is that those who use social media with the purpose of “correcting” misinformation are well-educated, middle-aged males who believe that climate information provided by the journalistic media, as well as research institutions, is correct – and that those facts must be disseminated. Our two examples illustrate this, as Gunnar and Aksel were quite similar and even shared professional interests. If they saw examples of the Internet as a hotbed of fake news and conspiracy theories, they believed that they must act on that, and they also tended to have faith in social media as an arena for debates. Here, sociodemography seems to matter and correspond with different cultural repertoires, but it is worth pointing out that survey research has found small demographic differences in how Norwegians view social media as arenas for public debate – but that individual activity and use of social media has greater explanatory power (Sakariassen, 2020).

These informants did not portray participation in such debates as problematic or burdensome; rather, they explained reacting to misinformation or entering debates to let out steam. Describing a long-winded and heated discussion where he felt he stood alone against the majority, Kalle, a lecturer in his 40s, said “Well, I got a fuckin’ kick [laughs]... I wrote, ironically, that I had to stop, and thanked my opponents for giving me a real adrenalin kick! [...] A young, female physicist got furious, and cantankerous on my behalf”. The notion of reacting to misinformation, then, appears gendered – as underlined by this informant’s stereotyped description – and something a privileged group of our informants do unstrained (see also Krange et al., 2019).

Climate sceptics are less inclined to describe their use of social media as a source to this kind of climate engagement – as illustrated by the women in our informant group, regardless of issue position. Some of the women also highlighted the emotional toll of entering debates, which resonates with previous qualitative research on female Facebook users in Norway (Sakariassen, 2021). A single female informant stood apart with a different kind of reactive use of social media for informational negotiations: Laura, a 32-year-old part-time consultant and climate activist. This brings us to the issue of mobilisation.

Mobilising co-activists

As noted, beyond dissemination of information, several studies have highlighted mobilisation of supporters as a key use of social media for climate communication, often associated with influential users (Boulianne et al., 2020; Hestres, 2014; Hutchins, 2016; Katz-Kimchi & Manosevitch, 2015). We find examples of such mobilising in our material, in the form of personal narratives of gradually aligning more of one's social media use to active pursuit of values and political beliefs.

Birgitta, a 19-year-old student, had a special engagement for nature and outdoor life: "I use Instagram to, in a way, engage myself and others to contribute to reduce plastic waste [in the oceans]". Specifically, she posted challenges linked to fundraising, for instance, promising to collect a certain amount of plastic per set amount of funds raised by her followers. She described how she developed this position and commenced on such gamified activism through finding influential Instagram accounts and hashtags related to the issue of plastic waste, contributed her own posts, and adopting some of the strategies she found elsewhere. She also connected her own attempts at fundraising to larger, organised initiatives. The mobilisational social media use, then, appears important for constructing knowledge and for interacting to develop a standing.

In addition to this kind of mobilising use that resonates with previous findings – albeit on a smaller scale – we also find that mobilisation emerges as central to some informants, in a different manner. Laura is a prime example. We detail her journey towards activism below, but at the time of the interview she said she used social media for activist purposes daily, including Telegram and encrypted e-mail to coordinate demonstrations. In these types of communications, supporters are given directions and encouraged to join: "we're heading to this or that bridge', eh, 'come join us!'", exemplified Laura. Again, the Norwegian context should be highlighted: Known activities from activist groups focus on civil disobedience in a society with legally established and widely accepted freedom of assembly and freedom of speech.

But the use of social media for mobilisation is not just about grassroots coordination of offline activism – it is also about digital activism. Laura used social media as a tool to monitor and track down newspaper articles on agricultural and climate policies, which she then reacted to by advocating veganism and climate action. This use of social media is similar to the use of those who react to misinformation, but it is more organised and collective in scope:

Laura: I'm a member of a [social media] group called [anonymised], or something, and we go online to scout, and comment on posts that need a bit of balance.

Interviewer: Yes? What is... are you going to online news sites' commentary fields, or...?

Laura: Yes, it can be quite random, it could be [national agricultural/rural industry newspaper] *Nationen*, it can be [traditionally social democratic newspaper] *Dagsavisen*, those who publish stories about meat or veganism or animals or such issues.

For Laura, this process is about making selected paths of activism and advocacy (such as veganism, in the example) relevant to the news agenda, but also about finding her footing as an activist. Social media use is one of many elements of a process of sense-making, in which values, political attitudes, and lifestyle choices come together to work towards mobilisation. Even though the Norwegian news landscape is comparatively less polarised (Hallin & Mancini, 2004; Newman et al., 2022), we here see contours of activist work across potentially separate issue publics. In this process, after navigating group positions, the use of different social media for mobilisation within and beyond activist groups appear as a key form of use.

Attuning beliefs emotionally

Whereas the four uses proposed so far provide nuance and breadth to previous findings, the fifth use of social media for making sense of the climate is, we would argue, less covered by existing studies. We thus highlight the relevance of social media to develop and express understandings of the climate issue that correspond with authenticity ideals and with ethical and political beliefs. Here, emotional engagement is essential. While several informants used social media to seek facts and discuss and correct misinformation, others stressed that social media provided them with alternative role models and truths, pushing towards what they perceived as more genuine understandings of the issue. We thus argue that this is an important but complex form of sense-making, where social media use plays a role in situating climate issues in light of personal identities and future outlooks. Along the way, social media serves to process emotions.

For instance, Laura, the climate activist, was spiritually awakened by watching Greta Thunberg's speech to the United Nations on YouTube (for a discussion of Thunberg, see Kunelius & Roosvall, 2021):

That was something I had never seen before, that someone spoke so directly and honestly. From a political chair. [...] That honesty combined with, eh, that was totally “wow, she speaks to me”. I felt in a way that she addressed my inner voice, or something like that...

Laura described a personal journey from being a disengaged young mother to, within a year, turning into a radical environmentalist, with a completely new lifestyle premised on an altered understanding of the severity and acuteness of the climate crisis. This journey appeared to be deeply enabled by social media, and the degree to which they offered an “alternative” path to the truths and made “vague” and confusing information more relatable, comprehensible, and processable.

After watching Thunberg's speech on YouTube, Laura searched for, and found, a new community of activists on Facebook. Having previously experienced climate information as distant and abstract, she moved from elusive concern towards activism and mobilisation. Laura highlighted the importance of emotional engagement: “It is only when you manage to emotionally engage

with the climate crisis [that] you are able to really take it seriously, when you have an emotional connection, not just intellectual, I think...”.

While Laura built an entirely new radical identity by means of social media, others used social media as a source of emotional engagement, but without the direct political activism as an end. Bjørg, a 74-year-old former stay-at-home-mom, was heavily engaged in opposition against wind turbines and used Facebook to reveal perceived hypocrisy of climate policy. This engagement revolved around the act of sharing photos on Facebook of the consequences the wind turbine industry has on nature in Norway. Through her membership in several Facebook groups, Bjørg shared and received pictures and videos that, through emotional motifs, helped build a community around resistance to wind turbines. Bjørg expressed scepticism towards a lot of scientific facts, and she was critical of elites and politicians, but the alternative facts found in pictures fueled her engagement in social media: “I saw someone counting dead birds below those windmills. I almost have to cry... no, I don't cry... it shouldn't be like that. It's just... I think it's completely horrible”.

From this perspective, pictures speak louder than scientific reports because they are direct and intuitive. Höijer (2010) has previously argued, based on analyses of newspaper coverage, that emotional representations can serve to enhance engagement with the climate issue, but also draw attention away. While Laura's representation resonates with the former, Bjørg seemed to illustrate the latter. For Bjørg, the engagement in local nature and wildlife seemed to serve as a lightning rod for claims – sometimes put forward in discussions with family members – that she is not concerned with the climate crisis.

In this way, social media functions as a tool in an ongoing sense-making process where emotional attuning of beliefs is at the forefront.

Conclusion

This article has answered calls for qualitative and interpretative approaches to social media's role for climate issues. We employed a peak in attention and engagement on Facebook in Norway as a case to analyse how people use social media for making sense of climate change.

Through an analysis of interview data, and in dialogue with previous scholarship on climate and social media use, we have formulated a qualitatively grounded typology of social media use for sense-making regarding climate, with the following five categories: filtering information, navigating group positions, reacting to misinformation, mobilising co-activists, and emotionally attuning beliefs. Each category represents a process, often ongoing over time, in which social media use takes part in bridging values and understandings, dealing with uncertainty, and navigating in a complex information landscape. By illustrating what these categories mean to general users of social media engaged in climate issues, we help move the field forward through an exploration of what the potential of echo chambers and polarisation means for sense-making processes, and beyond mainly professional and influential users towards an everyday perspective. Social media provide myriad opportunities for getting behind the headlines,

delving deeper into issues, and consolidating or finding an understanding for oneself. This facilitates opportunities for positive as well as problematic processes for individuals. Social media constitute an everyday communicative space in which people work to make sense of facts, navigate positions, express beliefs, and define pathways for action within their horizon, depending on the social reality they inhabit and experience in their everyday lives. The issue of climate change is perceived by our informants as polarised in the political debate as well as their day-to-day social settings. Our analysis shows how, in this context, the engaged citizens we have studied use various social media differently to figure out their own positioning, feel belonging, process their own feelings, mobilise companions, or seek out the opposition.

We situated our analysis in the context of Norway, a rich oil-producing liberal democracy, with strong editorial freedoms for journalism and high levels of ICT use, including of social media. In line with the aim of our contribution, we do not claim our typology to be empirically generalisable. We suggest, however, that our approach facilitates theoretical generalisation, providing an understanding of the processes behind a phenomenon (compare with Nadim, 2015). We show what the high-level uses of social media for climate communication (information spreading and support mobilisation) look like in the everyday lives of engaged citizens. By bringing out motivations as well as differences, we can yield better understandings of the processes that lead to such use. With that in mind, more work in different social and political settings could further such endeavours.

In closing, it is worth highlighting some differences among the informants that merit further scrutiny. First, those who expressed scepticism towards climate action to some extent considered themselves as censored, and therefore used social media to find like-minded people and discuss information they did not find in journalistic media coverage. Their group navigation thus appears stronger compared with those informants who expressed a clear concern or activism for the climate. Finally, the gender aspect is worth highlighting. Among our informants, men presented their social media posting as “reactive correcting of facts”, whereas some women presented their use as lurking, processing emotional reactions, or appearing more focused on issues of values. The last point underlines the importance of identity when it comes to climate engagement and the role social media plays in this regard.

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