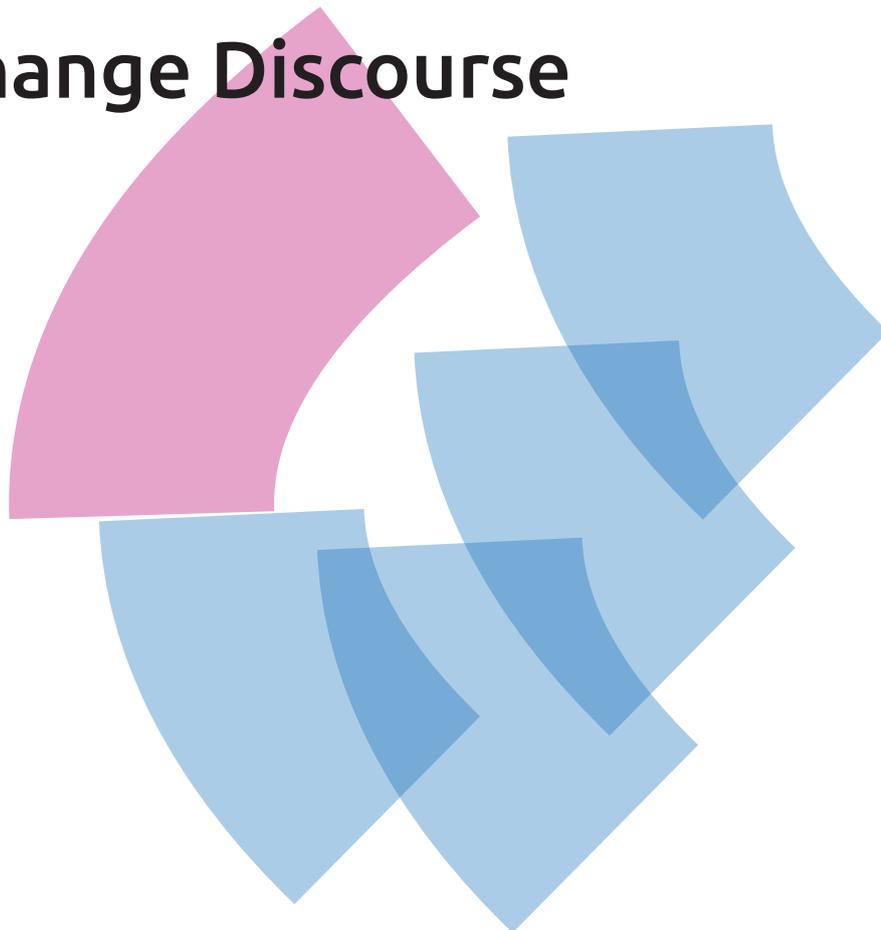


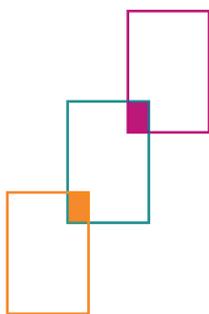


Centre for  
**Global  
Cooperation  
Research**

Alena Drieschova

# The Social Media Revolution and Shifts in the Climate Change Discourse





## Global Cooperation Research Papers 29

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# The Social Media Revolution and Shifts in the Climate Change Discourse

Alena Drieschova

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## **Preface**

*It is our great pleasure to present our 29th Global Cooperation Research Paper – ‘The Social Media Revolution and Shifts in the Climate Change Discourse’ by Alena Drieschova, senior lecturer in International Relations at Cardiff University and former postdoctoral research fellow at the GCR21. Alena Drieschova’s paper critically examines how discourses around climate change in the North Atlantic region are shifted through new rising actors, mainly climate sceptics and pro-climate activist social movements, within social media. How can climate change discourses be transformed within digital landscapes by anti/pro-climate groups and what does this kind of power mean for the discourse itself? Based on a qualitative social media analysis, Drieschova’s approach compares these two groups directly. Pro-climate activists seem to seize social media platforms most effectively. Although groups of climate science deniers are less successful in achieving the same scope of influence, they still need to be kept in mind as possible allies for right-wing populists as well as the ultra-right. Moreover, the paper concludes that the role of social media and digitization in general exceeds the empowerment of tech-savvy individuals and can turn into an important tool for marginalized groups and individuals. Drieschova’s analysis provides not only important insights into climate change discourses within social media, but also sheds light on strategies of (de-)legitimization by different groups around issues of climate and scientific discourse and is, therefore, an important contribution to the Centre’s research stream on legitimation and delegitimation in global cooperation.*

*Frank Gadinger (Editorial Board)*

# The Social Media Revolution and Shifts in the Climate Change Discourse

Alena Drieschova

## 1 Introduction

Social media have eroded the traditional role of legacy media to function as gatekeepers for the dissemination of messages to large sections of the population. Today, anyone can, in theory, disseminate his or her messages widely and thus obtain a public hearing of their cause. Social media ‘provide a voice to the voiceless’ (Gerbuado 2018: 746), so that hitherto unprecedented numbers of people can express themselves and reach large crowds. This fundamental change has had an impact on politics. Social media helped revolutionaries organize themselves in authoritarian regimes (Jurgenson 2012; Ratto and Boler 2014; Tufekci 2013), authoritarian regimes themselves have changed their messaging strategies and no longer fully rely on controlling public opinion (Deibert et al. 2012; Gunitsky 2015), and social media have contributed to the rise of populist movements (Adler and Drieschova 2021).

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This paper addresses the question whether the increasing usage of social media has also led to a change of the climate change discourse in the North Atlantic region. I focus on two new kinds of actors in particular who could gain leverage with the erosion of traditional gatekeepers: populist climate sceptics on the one hand, and broad-based mass social movements seeking radical change to address global warming on the other hand. The paper analyses the strategies these two groups of actors have deployed on social media to raise awareness for their cause.

While in theory anybody can reach large crowds on social media, only very few people actually do. Messages spread widely on social media if they get shared, liked, or retweeted frequently. They need to provoke a reaction in their audience that leads the audience to actively respond to the messages, be it only with a mouse click. Social media provide specific affordances, concrete possibilities for action, that users need to seize upon in order to disseminate messages widely (Adler-Nissen and Drieschova 2019). Some users, such as celebrities, prominent politicians, or businesspeople, automatically have a large followership as a result of their offline position in the real world. Others gain attention capital through their social media presence and become networked microcelebrities. They can use this capital to advocate for specific

causes (Tufekci 2013). Users who succeed in generating emotionally arousing content provoke faster responses and thus larger followership. Creating content that others can relate to and potentially adapt to have it shape their own online identity matters as well. This can be achieved through memes, imagery, and videos that can be modified and thus provide an outlet for personal expression and creative and witty play. The individualization goes hand in glove with a community forming dimension. Social media permit lonely crowds to gather in the virtual space, express shared allegiance, and form a collective (Gerbuado 2018). Coordinated activities become cheaper, faster, and easier. Successful social media usage generates a logic of connective action that replaces the traditional logic of collective action (Bennett and Segerberg 2012). In a logic of connective action, individualized and personal expressions matter over the expression of the collective; messages spread among peers in a horizontal network structure.

Climate sceptics have not been able to use the affordances social media provide effectively. They generate very little user engagement on the main social media sites, notably Twitter, Facebook, and Instagram. This is quite surprising, given that populists with whom climate sceptics are closely affiliated, have been extraordinarily effective in social media mobilization.<sup>1</sup> Yet climate sceptics have relied in their social media strategy primarily on imitating the scientific discourse. Although this strategy has been previously successful for climate sceptics to obtain a hearing in legacy media outlets (notably in Anglophone countries), it has not spurred large levels of social media popularity. We could potentially see an increase of climate sceptic voices on social media as part of larger populist discourses in the future. However, so far, climate scepticism has not played a prominent role in populist social media presence, perhaps because it does not mobilize the crowds as much as an anti-immigration or an anti-feminism narrative.

By contrast, the climate strike movement has been highly successful in stimulating social media engagement, and one person, namely Greta Thunberg, particularly so. She has been able to use her youth, vulnerability, innocence, and emotionality, coupled with a peculiar aesthetics, that highlight the ordinariness, the everyday, and the unimportance of her persona, to convey the message that even the least powerful person can make a significant contribution to combatting global warming. We see here a paradoxical phenomenon that digitization cannot just lead to the empowerment of tech savvy individuals but also to the empowerment of relatively vulnerable people with minimal technological knowledge and skills. Social media formed a necessary condition for Greta Thunberg to obtain the notoriety that she has. Without social media, no one would have noticed the lone teenager demonstrating in front of

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<sup>1</sup> It is worth noting though that different far-right groupings in different countries adopt different kinds of environmental discourses; many on the far-right espouse environmental protectionism (Forchtner 2020).

the Swedish parliament. Greta Thunberg is the most prominent young woman, but by far not the only one, to utilize her vulnerability, combined with a specific aesthetic and emotionality to generate social media user engagement, become a networked microcelebrity (Tufekci 2013), and use this position to advocate for major political change. Thunberg's specific aesthetic style is quite unique though and has so far not been imitated by any of the other microcelebrities in the climate strike movement.

The mainstream climate change discourse has followed the geophysical sciences and portrayed climate change as a universal, predictable, apolitical, and precisely measurable phenomenon that can be reduced to temperature increases to measure it, and CO<sub>2</sub> emissions to combat it. This mainstream discourse remains intact in many regards, and the climate strike movement has not sought to fundamentally undermine it. Yet, the movement has succeeded in shifting the discourse along three major lines. First, the movement has highlighted the urgency of the problem, and framed it in terms of a climate crisis. Second, it has introduced a significant normative dimension to the debate, emphasizing the importance of intergenerational responsibility that parents hold towards their children. Simultaneously, parental support has been important, as parents have defended their children against allegations of truancy. Third, the climate strike movement has shown that the problem is not so big that only the entire globe can solve it in a concerted effort or not at all, but that every individual carries responsibility and can provoke change in his/her everyday acts, not just as a consumer but as an active and political citizen. Political elites in the European Union are seizing upon the momentum that has been established and are using it, discursively as well as politically, to advocate for changes in climate policies. Their discursive support further feeds into the movement's legitimacy.

The paper first highlights the specific action potentials social media provide that allow for a wide dissemination of messages online. The next section describes the mainstream climate change discourse, which the climate strike movement as well as climate sceptics seek to challenge. Third I provide an overview of the findings from previous studies, mainly quantitative studies on Twitter, of how climate change has been tackled in social media. From these studies it appears that the overwhelming majority of social media posts imitate the mainstream climate change discourse. The fourth section explains the methodology I used for this study, which is a qualitative study of individual accounts of climate sceptics and the climate strike movement on Twitter, Facebook, and Instagram. The last section highlights the differences in the approaches to social media communication the two movements have adopted.

## 2 Social media affordances, microcelebrities, and the logic of connective action

Social media hold specific affordances, that is they ‘enable[s] and constrain[s] the tasks users can possibly perform with’ them (Adler-Nissen and Drieschova 2019: 531). Affordances highlight the action potentials that are inherent in technologies. Technologies can be used in multiple ways, and users can come up with new ways of using them, of which the technologies’ designers have not previously thought. Yet, these possibilities have to be existing features of the technologies (Evans et al. 2017). To determine the particular societal effects a technology will have, it is therefore key to study the technology in the social environment in which it is located. What matters is the interaction between people and the technologies they use, a phenomenon Orlikowski et al. (1995) have termed ‘technology-in-use’.

From an affordances perspective, social media hold several characteristics that hitherto marginalized actors can capitalize on to enhance their visibility. Most importantly, of course, social media decrease the costs for circulating messages, as they allow individuals and groups to sidestep legacy media when communicating with larger audiences (Gurevitch, Coleman, and Blumler 2009: 168; Pearce et al. 2018: 1). The barriers for participating in debates in the public sphere have been lowered. A large portion of the population obtains their news from social media, in the US between 47% and 62% according to opinion polls (Shearer 2017; Silverman 2016), demonstrating that messages circulated through this means of communication have the potential to spread widely.

Social media are platforms designed for the free flow of messages, where algorithms favour those messages that obtain speedy reactions in the form of sharing, liking, and commenting. The gatekeeping role traditional media performed in terms of checking in on the accuracy of messages in line with the ideals of journalism risks erosion. With hindsight, social media platforms are increasingly monitoring the content on their sites and at times blocking specific accounts. However, these appear as ad hoc and not yet fully systematized activities that are not fundamentally undermining the primary logic of requiring quick and frequent reactions on messages to ensure their wide spread, even as these activities raise thorny questions about free speech and the regulation of social media sites. It remains true that ‘timeline algorithms tend to favour instantly popular content – those posts that attract a high number of reactions in the few seconds and minutes since their publication’ (Gerbuado 2018: 751). Users who have more followers, that is users who are more famous in the real world for one reason or another, will have their posts seen by a larger number of people, and therefore a larger number of

people is likely to react to them (Duncombe 2019). Yet this basic rule can be counteracted as well.

Some people have become famous because of their social media presence. In an attention economy, they have succeeded to garner many followers to acquire the respective capital and become influential. Networked microcelebrities can use the popularity they obtain on social media to promote specific causes (Tufekci 2013).

Networked microcelebrity activism refers to politically motivated noninstitutional actors who use affordances of social media to engage in presentation of their political and personal selves to garner public attention to their cause, usually through a combination of testimony, advocacy, and citizen journalism (Tufekci 2013: 850).

These microcelebrities gain a high status on social media by managing its affordances effectively. In a positive loophole effect, mass media appearances, granted to microcelebrities because of their high followers, further increase their followership. Tufekci studies activists who contributed to the toppling of authoritarian regimes. Yet her definition of microcelebrities can be adapted to apply to populist and far right actors as well.

Notably, content that is emotionally arousing tends to provoke faster responses; especially negative affect plays a key role in speedy dissemination (Veltri and Atanasova 2017: 724). The importance of propagating emotionally arousing content to ensure its wide spread has been underlined by a 2018 study, which evaluated all news stories on Twitter since the site's launch, and concluded that false news stories disseminate significantly more quickly and widely than accurate news stories. The same study also found that these news stories provoked emotional responses of 'fear disgust and surprise' (Vosoughi, Roy, and Aral 2018: 1146). Fake news can be more sensationalist and might even get fabricated with the purpose to elicit emotional reactions and therefore disseminate more widely on social media.

Another affordance of social media is that they provide an online space for the 'lonely crowds' to gather and create a virtual community (Gerbuado 2018: 750). Dispersed individuals can meet and organize in cyberspace (Van den Bulck and Hyzen 2020). In this virtual space, they can orchestrate collective action and become politically active (Farrell 2012). For example, the Alt-right regularly engages in trolling tactics online, and selects specific targets, like celebrities or a computer game, to collectively attack them using the hashtag and reposting functions (Duncombe 2019). Social movements can deploy these functions to raise general awareness about specific issues. The opportunity costs in this virtual space are not as high. People can post, comment, and like from the comfort of their living room with the press of a

button.<sup>2</sup> They are not required to spend days outside potentially in adverse weather conditions (Bakardjieva 2015: 985) and risk arrest or physical harm, although it is worth noting that combining online and offline presence can be highly effective. Thus, many social media microcelebrities in the Arab spring gained their status by reporting from the midst of highly personally charged situations (Tufekci 2013).

At the same time, social media are based on user personalization. This means that they afford individual users fast and cheap ways to develop and curate their online identity, express themselves, and get involved. Users can change their profile pictures and convey their allegiance to a particular community or cause within seconds, although they can just as quickly reverse the act (Gerbaudo 2015). This personal identity forming dimension, and its reinforcement through positive feedback is what keeps users engaged.

Social media's affordances to diffuse, manipulate, and individualize imagery and video further enhance the curation of personal online identities. While photographs have always been important for expressing universal conditions through specifically tangible individual circumstances, social media afford to circulate infinite variations of an image and thus personalize it and adapt it to specific circumstances. 'Personalized yet universal narratives' get generated (Milan 2015: 894). 'The resulting collective narrative spurred by cloud protesting might be fragmented like a narrative via hashtags is – but it is flexible, real-time and crowd-controlled' (Milan 2015: 894). It is possible to make cartoons of the image, use reaction photoshop and add things to the original image, place elements from the original image into a new context, or re-enact the image with different people posing like the composition of the original photograph (Olesen 2018). Individuals can publicly display their own personal engagement and forms of self-expression, and thus develop ownership over the messages they emit. The performance of the individual's self is key. Social media afford this personalization, so that individuals can filter their participation in specific movements, adapt it and express through it their lifestyle and identity. When organizations and movements afford more room for the personalization of the key messages, they experience higher levels of user engagement (Bennett and Segerberg 2011).

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<sup>2</sup> This has generated concerns about slacktivism. Yet social media can help to change societal discursive structures and thus lead to real change. Another question is whether those who politically partake exclusively on social media, would have otherwise participated in real world activism, and whether social media engagement therefore actually crowds out real world activism. Ultimately, slacktivism only arises if actors purely engage politically on social media for self-image reasons and without seeking any change in the real world. Slacktivism becomes a problem if this social media involvement leads to a sense of self-gratification. In some instances, individuals can even undertake activities in the real world that are in opposition to their online statements, when they feel that they have sufficiently supported a cause merely by their online engagement (Cabrera et al. 2017).

Social media are the ideal environment for the spread of memes. According to (Bennett and Segerberg 2012: 745), a meme is

a symbolic packet that travels easily across large and diverse populations because it is easy to imitate, adapt personally, and share broadly with others. Memes are network building and bridging units of social information transmission similar to genes in the biological sphere (Dawkins 1989). They travel through personal appropriation, and then by imitation and personalized expression via social sharing in ways that help others appropriate, imitate, and share in turn (Shifman, forthcoming).

Mememes are the perfect tools in the social media environment to express group cohesion, while simultaneously allowing for individual expression through the use of imagery that provokes fast reactions and therefore ensures widespread dissemination. They often operate through humour, which is dependent on specific cultural contexts and interpretations.

If collective activities on social media become successful and use these affordances effectively, they generate a logic of connective action that is distinct from the typical logic of collective action (Bennett and Segerberg 2012). In a logic of connective action, the personalized and individualized identity matters over the group identity of the collective. Information spreads in peer-to-peer networks through personal sharing among friends. Shared affect keeps these networks together and dismantles them again (Papacharissi 2016). Social media are holding the potential ties latent, until they get used for specific purposes. 'Group ties are being replaced by large-scale, fluid social networks' (Bennett and Segerberg 2012: 748). Hierarchical organizational structures matter significantly less. People maintain their own personal identities, and express allegiance to different causes but without establishing a collective identity with others (Papacharissi 2016). The politics of identity is replaced by a 'politics of visibility' that generates 'individuals-in-the-group', rather than societal collectives (Milan 2015). Through these dynamics, established societal discourses can get disrupted, but it is significantly less clear whether these disruptions will lead to long-lasting change. They first of all introduce alternative viewpoints. The power these networks generate is of a transient nature, and they can dismantle as quickly as they emerged.

While social media share a set number of common characteristics, it is also worth noting that each platform provides slightly different affordances, and each platform is also animated by a somewhat different user culture, which impacts the ways the platform works and the kind of content that is shared on it (Pearce et al. 2018: 2). Dissimilar platforms can for example give preference to distinct kinds of imagery. Thus, Instagram is known for aesthetically appealing photographs, whereas Tumblr users preferentially post screenshots, memes and GIFs (Graphics Interchange Format). Observations from one

platform can therefore not simply be extrapolated to other platforms, and it is also worth studying how these platforms interact with each other (Poell 2014: 728). Social science scholars have focused their analyses on Twitter, because of Twitter's easy and transparent access policies and the simplicity with which Twitter's textual content can be analysed quantitatively. Yet Twitter is far from being the most popular social media site (317 million users), compared to Facebook (1,871 million users), YouTube (1,000 million users), Qzone (632 million users), or Instagram (600 million users) (Kemp 2017 in Pearce et al. 2018: 3).

### 3 The mainstream climate change discourse

Prior to the widespread use of social media, policy actors, natural scientists, economists, international organizations and NGOs had primarily influenced the climate change discourse (Litfin 2000; Bernstein 2002; Mitchell 2013; Allan 2018). Legacy media in most developed countries followed the discourse these actors created and reported on climate change primarily when natural disasters occurred, major international conferences took place, or important reports were published. This mainstream climate change discourse was established along universalizing scientific and apolitical lines (Jasanoff 2010; Methmann 2013).

Climate change as a phenomenon has been studied primarily as a geophysical occurrence, rather than as a biological, ecological and/or complex phenomenon. The United States military provided financial support mostly to the geophysical sciences in the 1950s to study the climate in order to manipulate it (Allan 2017). This ensured that the geophysical sciences progressed more rapidly in climate change studies than other natural sciences, like biology or ecology. The geophysical sciences hence provided the discursive framework that shaped the understanding of climate change, and they portrayed a 'gradualist, determinist, and predictable image of the climate' (Allan 2017: 132). By contrast, other scientific approaches characterize the climate as 'nonlinear, indefinite, and volatile' (Allan 2017: 132). In a geophysical framework, the highly complex phenomenon of climate change has been reduced to the measurable figure of CO<sub>2</sub> with the understanding that if CO<sub>2</sub> levels are controlled, it is possible to precisely influence the climate (Weingart et al. 2000; Lövbrand, Stripple, and Wiman 2009).

The geophysical conception of the climate links up well with neoclassical economic models that equally promise controlling supply and demand on a market via the pricing mechanism (Allan 2017: 153). From 1972 onwards there has been a gradual convergence of norms of environmental protection and economic liberalism; Bernstein termed this nexus 'liberal environmen-

talism' (Bernstein 2002). From the UN conference in Rio in 1992 onwards, solutions to addressing climate change have been framed in terms of sustainable development. The principle of sustainable development, which formed a corner stone of the climate change mitigation discourse emerged as a compromise solution between the North and the South, partly because the South did not want to forgo its opportunity for development (Bernstein 2002; Mitchell 2013). The primary focus was on ensuring economic growth; economic growth and environmental protection have been conceived in zero-sum terms (Meckling and Allan 2020). To address climate change, policies sought to identify mechanisms to reduce CO<sub>2</sub> on the basis of market principles, not through restrictive regulatory measures, as market mechanisms were thought to be cheaper (Flottum and Gjerstad 2017).

Following the 2008 financial crisis, the discourse changed slightly and moved from sustainable development as its corner stone to the notion of 'green growth'. Scientific research has made it increasingly obvious that climate change is a reality and will necessitate widespread measures to mitigate it. At the same time, the financial crisis was thought to require policies that enhance economic growth. Green growth suggests that environmental protection and economic growth are compatible, if economic growth is steered in the right direction with the help of state intervention and specific regulations (Meckling and Allan 2020: 434).

There has been one significant exception to this general discourse, primarily stemming from conservative think tanks and fossil fuel lobbies in the United States, who have sponsored contrarian scientists to sow uncertainty by challenging the findings of scientific researchers and questioning the occurrence of climate change, or its anthropogenic nature (Austin 2002; McCright and Dunlap 2003; Pollack 2003; Oreskes 2004; Jacques et al. 2009; Boussalis and Coan 2015). This counter-discourse has been remarkably successful particularly in the United States and to some extent also in the United Kingdom, Australia, and Canada but less so in other liberal democracies (McManus 2000; Dispensa and Brulle 2003; Carvalho, 2005; Kaiser and Puschmann 2017). It has been promoted by legacy media and even wire and news service providers (Antilla 2005), who in an effort to provide balanced reporting allocated more space to climate sceptics than scientific findings would warrant (Boykoff and Boykoff 2004; Oreskes and Conway 2010; Lewandowsky et al. 2013; Harvey et al. 2018). They thus created an image of scientific controversy that has confused the public about the reality of climate change (Zehr 2000; Antilla 2005; Carvalho 2007). The scientific findings of climate change falsely appear to be hotly debated and very uncertain.

It is probably for this reason that there is a 'consensus gap' in the United States between the general public and the overwhelming agreement of the scientific community that climate change is happening, that it is man-made, and that it will cause serious difficulties for our societies in the foreseeable

future if nothing is done to mitigate it (Dunlap 2013; Harvey et al. 2018). The general public opinion in the United States remains mostly unconvinced of climate change. For example, only 36% of Americans believe that climate change is a serious concern, and only 48% that it is anthropogenic (Roxburgh et al. 2019). It is difficult for citizens to comprehend long-term trends that affect very large stretches of territory but only have a small impact on people's day-to-day lives in the present (Wilson 2000). All the more, populations rely on the media to portray climate change to them. The artificial legitimization of fringe views about climate change in US media has fuelled the climate change scepticism in the American population and legitimized inaction in the face of climate change. The United States' reluctance to adopt mitigation policies and adhere to international treaties has been directly linked to the prevalence of the climate sceptic discourse (Boykoff and Boykoff 2004; Antilla 2005; Jacques et al. 2009).

Past research demonstrates that prior to the onset of social media, NGOs as well as climate sceptics had already been quite successful in shaping the climate change discourse (Haas 1992; Raustiala 1997; Allan 2020). NGOs were very successful at the international institutional level, which has been to some extent removed from domestic political pressures (Litfin 2000; Mitchell 2013). By contrast, climate sceptics operated through domestic politics, notably in the United States, to sow confusion. The question now is whether through social media, broad based social movements can influence the climate change discourse and climate sceptics can have even more power than they have had hitherto.

## 4 An overview of climate change discussions on social media

Climate change is a popular topic on social media. A Pew Research Centre study demonstrates that sometimes climate change and global warming are among the top five keywords on all English-language blogs and in all tweets (Schaefer 2012: 532). By contrast, ordinary citizens seem to be less engaged in climate change topics than they are on average on social media. According to opinion polls, 7% of American respondents share content related to climate change on social media and 6% have commented on another post (Leiserowitz et al. 2013). Although citizens are in general not very involved in climate change related matters (Anderson and Huntington 2017), ordinary citizens' online conversations about climate change occur less frequently than their offline engagement; 35% of US respondents said they occasionally discuss global warming with relatives and friends (Leiserowitz et al. 2015; Anderson 2017: 5). Thus, while climate change is a popular topic on social media, on-

line engagement with it is comparatively less popular for ordinary citizens, perhaps due to the scientific nature of the conversation that takes place online.

The overwhelming majority of studies that analyse how climate change has been represented in social media thus far are quantitative analyses focusing on Twitter. Overall legacy media strongly dominate the climate change discussions on Twitter, and those discussions follow the mainstream scientific climate change discourse.<sup>3</sup> For example, in conjunction with the 2013 IPCC report, the most frequently occurring domain names on Twitter were from mainstream media (35%), new media (23%), science news (20%), governments or academia (12%), and advocacy groups (9%) (Newman 2017). Furthermore, around 50% of climate change related retweets are retweeting 0.4% of users, primarily mainstream media outlets (Kirilenko and Stepchenkova 2014). Most web links in climate change tweets (67%) also refer to mainstream media, while 9% reference NGOs, and 8% non-professional blogs (Veltri and Atanasova 2017: 733; also see Poell 2014). Climate sceptic blogs such as Watts Up With That and Climate Depot were each linked to 0.2% of the climate change tweets (Kirilenko & Stepchenkova, 2014). Yet among the 100 most retweeted posts mentioning the 2013 IPCC report, 35% came from non-elite users, and 17% from mainstream media. The top five tweets most frequently retweeted all came from elite users though, and the retweeting network was highly skewed towards the top (Newman 2017). This data suggests that while mainstream media are the most influential tweeters, other users can garner attention on social media (Pearce et al. 2018).

The content of tweets is in line with this general user and retweeting pattern. Veltri and Atanasova (2017) found that 78% of the tweets related to climate change were of a descriptive nature, and 22% called for action. Accordingly, most tweets had a neutral tone, followed by an equal amount of positive and negative tweets. Similarly, Anderson and Huntington (2017) found that climate change tweets contained low levels of incivility and sarcasm (around 3%), which were expressed mainly by ultra-right users.

The rather low performance of climate sceptics on social media is surprising and goes against the overall trend of the ultra-right's and populists' success on social media, especially when compared to more mainstream political parties and movements (Adler and Drieschova 2021). One partial explanation for this discrepancy could be that climate sceptics use a different set of hashtags and mainly congregate around the hashtags 'climaterealists' and 'agw' (Williams et al. 2015; Anderson 2017: 9).<sup>4</sup> Studies of climate change on Twitter might thus not capture their tweets, if those studies concentrate on more gen-

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<sup>3</sup> Legacy media are the mass media that already existed prior to the emergence of the web 2.0, in particular print media, radio and television broadcasting. New media are such forms of mass communication that are delivered digitally and do not exist in print. An example would be BuzzFeed.

<sup>4</sup> 'Agw' stands for anthropogenic global warming.

eral hashtags like ‘climatechange’ or ‘global-warming’. Yet, one study looked at the hashtags ‘agw’ and ‘climaterealists’, which climate sceptics employ, alongside the hashtags ‘climatechange’ and ‘globalwarming’, and found that climate sceptics have a significantly lower reach than ‘activists’ (Williams et al. 2015). The same study also found that a few activists had a very large number of followers, whereas the number of followers was more evenly distributed among sceptics (Williams et al. 2015: 134). Of the total number of tweets collected in the study, 97.7% contained the hashtags ‘climate’, ‘climatechange’, and ‘globalwarming’. In another study the same authors found that the hashtag ‘agw’ accounted for 1.4% of collected climate change tweets, and #climaterealists effectively seized being used (Williams et al. 2015). The study confirms that climate sceptics are not significantly influencing the climate change discourse on Twitter. Occasionally, in conjunction with specific events, such as extreme cold weather spells, or scandals, like ‘Climategate’, climate sceptic sources can experience a temporary spike in their popularity (Hollin and Pearce 2015; Roberts et al. 2015; Medhaug et al. 2017; Roxburgh et al. 2019). Beyond this, the mainstream climate change discourse dominates Twitter. Surprisingly, there is less climate change scepticism on Twitter and more acknowledgement of the scientific consensus on climate change than in the mass media in the United States and the United Kingdom (O’Neill et al. 2015; Loerchner and Taddicken 2017).

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Yet, climate sceptics are comparatively successful in the blogosphere. For example, blog readers nominated the climate sceptical blog WattsUpWithThat.com the ‘Best Weblog of the Year’ in 2013, and the ‘Best Science Blog’ three times in a row, which is the maximum number of times any single blog can win (Elgsem et al. 2015). Climate sceptic blogs have many visitors (around 300,000 per month) and are among the most popular blogs on climate change (Schaefer 2012; Harvey et al. 2018). It is worth noting though that only around 7% of the population uses blogs (Sharman 2014). Major social media sites are significantly more popular. As I demonstrate below, climate sceptics have an even lesser number of followers, shares, and likes on Facebook and Instagram than they have on Twitter. And alternative social media sites, such as 4Chan, Gab or Parler, have comparatively low user numbers.

## 5 Methodology

The paper’s focus is on those actors who are typically marginalized in mass broadcasting media environments and acquire opportunities to voice themselves on social media. Given that social media are highly decentralized and informal, they provide new opportunities in particular for individuals and grassroots social movements, which function outside of the political main-

stream (Castells 2004; Kaiser and Puschmann 2017). In addressing the question of whether social media have led to a change in the climate change discourse, the analysis focuses on these actors. I have therefore not studied the social media strategies of international organizations, government officials and institutions, legacy media, scientists and scientific institutions or traditional NGOs. Instead, I concentrated on not fully institutionalized social movements and on individual users in their positions as ordinary citizens.

The study compares climate sceptics' social media strategy with the climate strike's social media strategy through a netnography (Costello et al. 2017). Given that most existing analyses of climate change in social media have focused on Twitter and been text-based quantitative analyses of big data, I have heeded Pearce et al.'s (2018: 1) advice to 'consider qualitative studies, visual communication and alternative social media platforms to Twitter'. Notably, I focus on Instagram, Facebook, and Twitter, and on the interaction between these sites. I picked these three sites, because they are among the most popular social media sites in Western democracies with the largest numbers of active monthly users, namely 2.7 billion for Facebook, 1 billion for Instagram, and 330 million for Twitter. These sites have thus the largest likelihood of influencing the mainstream climate change discourse in liberal democracies.

I study texts as well as imagery.<sup>5</sup> Studying the imagery of climate change on social media represents an empirical contribution, as the overwhelming majority of available studies does not account for imagery. Yet imagery is especially important for provoking emotional reactions and generating general appeal. How imagery gets used, how it is transformed, and how it circulates matters for the widespread dissemination of messages, is perhaps more important than the text itself.

Different from most social media studies, which retrieve messages that contain specific hashtags, I have decided to follow individual user profiles to identify the social media strategies of specific users and their effectiveness. One individual, who is unlikely to have ever made the cut in a traditional broadcasting environment, stands out. Greta Thunberg was a 15-year-old teenager in August 2018, when she began going on school strikes to save the climate. Her notoriety for addressing climate change stems first and foremost from social media. Two years later, she has been co-leading a wide social movement that has stepped out of the virtual on-screen world into real life. And she has been followed by numerous other, typically female, teenage activists, one of whom is Luisa Neubauer.

Secondly, I focused on a set number of climate sceptics. Picking the right climate sceptics was significantly less obvious, as they do not carry the same degree of notoriety. I selected climate sceptics on the basis of a secondary

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<sup>5</sup> The skillful interplay between imagery and text works particularly well to mobilize emotions (Freistein and Gadinger 2019).

literature analysis, which has primarily mapped climate sceptic blogs (Sharma 2014; Reed 2016; Schmid-Petri 2017; Metcalfe 2020). Some of these blog owners also appear on social media, notably Twitter. I manually scrolled through the lists of people they followed to identify other climate sceptic Twitter users with large numbers of followers. Previous studies have already found that the followers of climate sceptics are more evenly distributed (Williams et al. 2015). I have certainly not captured all climate sceptics, and there might be some influential ones I have missed. Nevertheless, I have included nine accounts in this analysis and studied eighteen; I assume that if there were influential trends that differ significantly from the ones I identify, I would have found some trace of them on the accounts of the climate sceptics I studied. Including more climate sceptics in the analysis is unlikely to have altered the findings dramatically.

I define social media success on the basis of how many followers these actors have, and how often their most popular messages get liked, shared, and commented on. I have identified these messages manually and describe and interpret them below in line with a netnographic approach (Costello et al. 2017). I then traced these messages, and analysed what other users, who have picked the messages up, further did with them. I also studied how the messages travelled across different social media platforms, which I identified based on the dates on which they were posted. Overall, the qualitative analysis inductively identifies some specific and original strategies that can succeed on social media, and potentially lead to lasting change offline. Other strategies can already fail online, and therefore do not even carry the potential for change in the real world.

The focus of this study is not to establish causal claims, but rather to identify mechanisms of social media engagement with climate change based on an interpretive analysis. While this approach generates meaningful insights and hypotheses, the analysis is not immediately generalizable beyond the case studied. I selected the ‘dependent variable’, based on success cases, and there is a potential for selection bias. Other scholars are welcome to pick up the mechanisms I identify here, operationalize them, test them quantitatively, and develop causal claims.

## 6 A qualitative analysis of climate sceptics' and the climate strike movement's activities on social media

While Greta Thunberg has 10.5 million followers on Instagram, 4.4 million followers on Twitter, and 3.2 million followers on Facebook, the most popular climate sceptics have between 30–70,000 followers on Twitter and use Facebook and Instagram significantly less. Many do not have any public accounts on Facebook and Instagram; when they do, their follower numbers tend to be lower than on Twitter, with a maximum of around 40,000 followers. These very basic findings are surprising and warrant an explanation. Populists and the Alt-right, with whom climate sceptics are closely associated (although some populists are environmental preservationists, and some climate sceptics are ordinary conservatives), are otherwise very successful on social media. Why are climate sceptics not?

### 6.1 *Climate sceptics' failed social media strategy*

Climate sceptics adopt two disparate strategies on social media. The first strategy entails imitating a scientific discourse to debunk the scientific consensus on climate change. The second strategy consists of incorporating a critique of climate change science and climate change mitigation policies into a much larger societal and political discourse associated with the ultra-right agenda, the threats of socialism, and the Making America Great Again (MAGA) movement.

The accounts imitating a scientific discourse to delegitimize the scientific consensus on climate change are Watts Up With That (29.3K followers on Twitter), The Global Warming Policy Forum (12.8K followers on Twitter), Climate Realists (47.8K followers on Twitter), Judith Curry (28.2K followers on Twitter), Friends of Science (37.1K followers on Twitter), and JWSpry (19.4K followers on Twitter).

These users rely on the image of science and seek to optically imitate science to undermine the scientific findings of climate change, a strategy that has already been noted by other scholars (Sharman 2014; Boussalis and Coan 2015; Elgesem et al. 2015; Schmid-Petri 2017; Bloomfield and Tillery 2019). Typically, they provide hyperlinks to their own blog posts, some do so almost exclusively, such as Watts Up With That, the Global Warming Policy Forum, or Climate Realists. They use images that appear scientific, such as global maps with temperature measures, graphs of CO<sub>2</sub> emissions and temperature rises, microscope photographs of microbes, hurricane imagery, diagrams, or

photographs of nature and animals. They list equations and supply data. For example, a Twitter post on Watts Up With That from 4 January 2021 shows a map of the United States with mean daily temperature changes from the period between 1981–1990 to the period between 2011–2020. According to the map, the mid-west of the United States has cooled down, whereas temperatures in the western US have increased. The argument is that changes in temperature are due to changes in land-use patterns. Urbanization leads to increase in temperature and temperature changes should be population weighted.

Some of the sites also post information about events they host with alternative experts and contrarian scientists, such as webinars, or lectures. For example, the Global Policy Forum hosted a webinar on the 17<sup>th</sup> of November 2020 with Professor Richard Tol, Professor Ross McKittrick and Victoria Hewson on the effectiveness of carbon taxes. They then post videos of lecture recordings on their account.

Other users, like Friends of Science, post links to a variety of different sites. They can post web links to climate sceptic blogs like Watts Up With That or the Global Warming Policy Forum, alongside selective posts to more mainstream blogs, such as The Conversation, or mass media sites like The Times, if those sites contain articles with titles that appear to confirm their hypothesis of climate change being a hoax. The strategy is to provide alternative data that demonstrate the earth is not actually getting warmer, and extreme weather events occur more rarely rather than more frequently, or to provide alternative accounts for why global warming takes place, such as a heating of the sun. The accounts also seek to generate a general mistrust of climate scientists' work. They criticize them by arguing that their findings are not scientifically valid, because they are based on incomplete data or incorrect methods. For example, a Twitter post from the Global Warming Policy Forum from 29 December 2020 links to a post on the blog 'Science Under Attack', which argues that the 'ancient climate was warmer than today's'. The post summarizes in detail two studies that have discovered these findings (including the methodologies they used) and includes graphs and maps but no references to the studies in question.

While climate sceptics imitate a scientific discourse on the surface, there are also some differences in linguistic form. Compared to the mainstream scientific discourse, as exemplified in the reports by the Intergovernmental Panel on Climate Change, climate sceptics express themselves with more certainty, less formality, and more emotionality (Medimorec and Pennycook 2015). The tone of language becomes apparent from a tweet by Watts Up With That from 2 January 2021. The tweet introduces a blogpost with the words 'Inconvenient Truth: Climate-related death risk down 99.6% over 100 years'.

Perhaps because of the effort to imitate the scientific discourse Twitter appears to be the most popular social media site for climate sceptics among the ones

I studied. Some of the users do not have Facebook accounts. The ones that do tend to have slightly less followers on Facebook than on Twitter, although Facebook has a significantly larger user base than Twitter. Climate sceptic Facebook accounts also tend to post less material than the same users post on Twitter. Typically, the material on Facebook is less original, and users rather rely on reposting weblog entries. It is very rare that climate sceptics imitating the scientific approach use Instagram at all. I could only identify one account, namely Friends of Science with 161 followers, and the posts are amateurish videos about climate change, obtaining around 10 likes on average.

As a micro-blogging site, Twitter perhaps also bears the highest resemblance to the web-blogs, which many of these climate sceptics initially created. On their social media accounts, they continue to apply the same strategies they used for their blogs. A scientific framing has been crucial for the positioning of the most important climate sceptic blogs.

These central blogs [have been] key protagonists in a process of attempted expert knowledge de-legitimation and contestation, acting not only as translators between scientific research and lay audiences, but, in their reinterpretation of existing climate science knowledge claims, are acting themselves as alternative public sites of expertise for a climate sceptical audience (Sharman 2014: 159).

Climate sceptics' reliance on science is a purely performative act, based on the visualization of the hyperlink and imagery that appears science-like, but lacks any substantive dimension. These users value 'the appearance of objectivity and being aware of "scientific facts" that ordinary environmentalists are either unaware of or unable to process because they are "duped" by experts with nefarious motives' (Bloomfield and Tillery 2019: 28). Yet, the reliance on the optics of science might prevent this community from reaching a wider audience on social media, where fast, emotional reactions, identity forming features, community building dimensions, and particular but universalizable imagery are key affordances that can be exploited for success. The affordances of social media might not be the same as the affordances of blogs and applying the same strategy for social media as for blog posts might not lead to the desired results. Those social media posts that appear science-like tend not to receive many likes and shares; they typically reach somewhere between 10 and 30 likes for the less popular posts and the most popular posts reach around 500 likes.

By contrast, some of these users also post comics, memes, and sarcastic videos on occasion. These posts are more successful. In particular, those that mock Greta Thunberg reach high levels of popularity. A comic posted on 2 December 2019 on Facebook by I Love Carbon Dioxide shows mother nature holding a sign with the words 'record breaking cold'. An angry Greta covered in snow is standing next to her saying 'how dare you' and holding a stop

global warming sign in her hand. On the 6 November 2019, the same user posted a meme on Facebook which contains a photograph of Greta Thunberg from her UN speech with a speech bubble saying, ‘you have stolen my dreams and my childhood!’. Underneath it is a picture of a black boy in rough terrain saying, ‘Getting that Cobalt for your electric cars fast as I can Greta.’ A video posted by I Love Carbon Dioxide of a teenage girl mocking Greta Thunberg in the style of stand-up comedians reached 1.9K likes on Facebook; it is the most popular video of this user.

A second strategy climate sceptics have employed is to incorporate climate change scepticism in a significantly larger set of societal critiques following an ultra-right agenda. Thus, Stephen McIntyre’s account is called Climate Audit (35.2K followers), but he does not post much about climate change on Twitter, despite the account’s name. Similarly, Marc Morano’s Twitter username and profile picture are set to be Climate Depot (24.7K followers on Twitter). Yet his Twitter account only occasionally touches upon issues related to climate change, mainly focusing on day-to-day American politics expressing a strong support for Trump and Republicans instead. He provides links to a large set of news stories stemming from mainstream media as well as from more fringe sites, with the stories’ titles as the tweeted text. For example, he posted a story entitled ‘Up to Two Thirds of Serious Covid Infections are Caught in Hospital – Study’ from lockdownsceptics.org on 10 March 2021. On the same date, he also posted a news story from Reuters titled ‘China launches COVID-19 vaccination certificates for cross-border travel’, a story from the New York Post entitled ‘Disney+ prevents kids from watching ‘racist’ classics including “Dumbo”’, and a story from iceagenow.info entitled ‘US February was the coldest in 32 years’, among others. He also retweets an eclectic set of tweets. Despite his extremely prolific Twitter activity, his tweets do not get liked or retweeted very frequently, mostly 10 to 20 times per tweet.

The Facebook account (with 6448 followers) mainly serves to promote the blog posts of Climate Depot, which critique climate change science and policy. The style does not imitate science, but rather journalism and news satire. A post from 21 April 2021 for example reads the following: ‘Would you believe it? As one of our commentators predicted, Facebook is now suppressing a post about FB suppressing a post about FB suppression of the New York Post. Mr. Zuckerberg, tear down these algorithms!’. Another one from 19 July 2019 says, ‘America’s Apollo Astronauts want NASA to knock off the climate propaganda and focus on hard science and space.’ Photographs and comics are meant to draw readers in. One comic shows a broken, green car that is close to falling apart with a license plate that says ‘socialism’. In the car are Alexandria Ocasio-Cortez, John Kerry, Bernie Sanders, Elizabeth Warren, and Kamala Harris, among others. Alexandria Ocasio-Cortez is holding a picture frame around them with the words ‘Green New Deal’ on it; the text above the image reads ‘How many times must socialism fail?’. Satirical comments of Greta Thunberg with the corresponding imagery are a compara-

tively popular item to generate user engagement with around 300 likes and 100 shares. One of those from 11 December 2019 shows the Time's cover that announced Greta Thunberg as the Time's 'Person of the Year'; a text next to it reads 'Contrary to what your parents told you, turns out skipping school and hysterical hissy fits was the way to go after all'. While the Twitter account is extraordinarily active with several dozens of Tweets and Retweets per day, the Facebook account typically receives one post every couple of months.

Naomi Seibt, labelled the 'anti-Greta' and one of the most successful climate sceptics with 43.2K followers on Twitter, does not actually tweet very much about climate change but more about American politics, her support for Donald Trump, and the MAGA movement. Many of her Tweets are acerbic comments on day-to-day American politics without any embedded links or pictures. For example, on 12 January 2021, she tweeted 'Add #BlackLivesMatter to your Tweets for purge immunity' in response to the shutting of a number of Facebook and Twitter accounts linked to the Capitol riots in support of Donald Trump on 6 January 2021. Two days later, she tweeted a commentary on the COVID-19 lockdown: 'Over 100,000 new migrants seeking asylum; during a heavy lockdown for the rest of us sheeple who are only allowed to move within a radius of 15km – "open borders" only goes one way.'

Naomi is significantly less active on Facebook, where her account functioned as a personal account until early 2019, when she started to use Facebook primarily to circulate her self-made videos on a number of different political issues, such as critiques of Feminism, the need for free speech, critiques of migration policies, and climate change mitigation. The links received a few hundred to a thousand likes. A link to a Washington Post article that labelled Naomi Seibt as the anti-Greta obtained 5.3K likes. Naomi happily adopted the label and has been portraying herself along these lines. Her Instagram strategy is entirely different. Although her bio makes a reference to Greta Thunberg, when it states 'I don't want you to panic. I want you to think', the account is quite apolitical. She mainly posts selfies in the gym or in a dance studio without much political commentary, but occasionally wears a Trump T-shirt. She has 7220 Followers on Instagram and her posts get liked around 1000-2000 times. Naomi's videos and pictures come across as self-made and not very professional, but with a general effort to follow basic principles of composition in terms of colouring and positioning. Her bodily posture and facial expression are reminiscent of posing apparently imitating models.

While the first social media strategy of climate sceptics entails emulating the pictorial and linguistic discourse of mainstream climate change science to delegitimize it, the second strategy focuses on embedding climate change scepticism into the broader agenda of the far right and employing similar discursive strategies as the ultra-right employs on topics such as immigration, race, elite conspiracies, and vaccines (see also Lewandowsky et al. 2015; Kaiser and Puschmann 2017). Neither of these two strategies is particularly successful

on social media in terms of user engagement. Surprisingly, compared to the space climate sceptics enjoyed in legacy media, they are worse off in the social media environment. They do not succeed to significantly influence the social media discourse on climate change – not in comparison to activists, not in comparison to the cloud they held in legacy media, and not in comparison to the influence their intellectual brethren from the Alt-right hold in a diverse set of topics ranging from immigration, to vaccines, and anti-feminism.

The imitation of scientific discourse strategy worked extraordinarily well in the traditional media environment, in which the normative legitimacy of science carries a high currency. However, science appears boring and complicated from a social media perspective in which fast reactions are key, particularly so if account holders do not have any significant institutional backing that would ensure them high follower numbers. The strategy does not use the affordances social media provide to their best effect and this might explain its comparative lack of success in social media engagement. The second strategy of embedding climate scepticism into the far-right discourse has also not proven particularly successful so far. This could potentially change in the future, if the far-right decides to focus on climate scepticism and succeeds in framing it as a topic that can increase its followers and keep existing followers engaged. For now, this does not seem to be the case. Other topics such as migration, or vaccination yield far more user engagement than climate change.

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By contrast, a lone teenager, Greta Thunberg, has been highly successful in starting an entire climate strike movement. She has become the voice of the younger generation, based on her social media presence, and is now representing the youth in many prominent climate fora. She has obtained a public voice and sometimes a seat at the table. Many other teenagers have followed in her footsteps and have become similar (if less successful) social media celebrities combating climate change.

## *6.2 Accounting for Greta Thunberg's success on social media*

The Swedish teenager Greta Thunberg provided the inspiration for the 'Fridays for Future' and the 'Climate Strike' movement. On 20 August 2018, Greta sat with a hand painted banner, which read 'Skolstrejk för Klimatet' alone in front of the Swedish parliament. She had a picture taken of herself and posted it on Twitter. Other people had joined her on the second day already. Before long, her Twitter photographs went viral and inspired an entire movement. Fridays for Future was formed in The Hague on 4 September 2018, and in Berlin on 14 September 2018. Greta gave her first public speech on 8 September 2018 at the Peoples' Climate March in Stockholm. She was nominated for the Nobel Peace Prize three times in a row (2019-2021), she obtained Amnesty International's Ambassador of Conscience Award, and the

Geddes Environment Medal from the Royal Scottish Geographical Society. She also became Time's 'Person of the Year'. She spoke in front of the UN General Assembly and the European Parliament. She has met many prominent politicians, such as Angela Merkel, Alexandria Ocasio-Cortez, and Ursula von der Leyen, and many celebrities have endorsed her. Greta Thunberg is the face that has provided a sense of urgency to the climate crisis, a call for action, and a sense of responsibility to the adult world. She has dramatically shifted the public discourse and might provide the ammunition for lasting policy change to address climate change.

It is worth noting that Greta Thunberg's notoriety emerged initially from her Twitter photographs going viral. Without Twitter, only a few passersby would have noticed the lonely schoolgirl striking in front of the Swedish parliament. Even if traditional media had picked up on the story (which is unlikely), I will argue in the following that they would not have provided the affordances that led to Greta Thunberg becoming an inspiration for a powerful youth movement.

The picture on the first day on which Greta went on strike obtained 1.8K retweets and 6.8K likes. Prior to this post from 20 August 2018, Greta had a few other posts on Twitter, which obtained the same number of retweets and likes as the posts of any person with a decent social media network of friends. Her posts on Facebook and Instagram are of a significantly later date. Her first picture on Facebook dates back to 7 December 2018. Twitter was her launching site of choice, although she now has a significantly larger crowd of followers on Instagram and Facebook.

The photograph from 20 August, her first day of climate striking, marks a drastic change in Greta's popularity. The picture captures the eye by its ordinariness. Greta sits on the pavement reclined against a stone wall. Her knees are elevated, leaning against each other and her hands are folded on top of them, she is slightly slumped. The body posture is unassuming, not imposing at all, a little shy perhaps, a bit innocent, but not apologetic. The face is the face of a child, but it has a certain dauntlessness and is slightly accusatory with sharpened eyes and pressed lips that will not form into a smile. The composition does not follow the ideals of photography; her shoes are for example partly cut off from the image, and the angle is not the most flattering one. There is no attempt to pose and look good in front of the camera. The clothes are mismatched, and do not follow any fashion ideals. If anything, the image expresses a complete disregard for fashion; in fact, the image's aesthetic communicates a downright indifference to form altogether. It highlights that the substance of the issue is what matters. In many ways, the photograph goes against the culture of self-representation on social media. It provokes by its ordinariness and simplicity, and thus generates a sense of authenticity. The substance of the message is key, and there is no distracting from it through aesthetic effects, no luring into the image. Here is an ordinary, tiny, vulnerable

teenager with no power in her hands, deciding on her own to go on a school strike for the climate. She chooses to put her own personal future at risk, because, frankly, that personal future will not exist if adults do not sort out the climate crisis. The child already serves as a symbol of the future (Burman 1994; Adler-Nissen et al. 2019); a school strike does even more so. That the future of humanity is at stake is expressed very powerfully in this deceptively ordinary photograph.

In this treacherous simplicity, anybody can imitate the photograph. It demonstrates the possibilities for ordinary everyday actions to address climate change, a topic that has hitherto been deemed so complex and grand that no individual could make a difference. Inspired by Greta Thunberg, across social media people started posting pictures of themselves holding a hand painted banner expressing in different languages ‘Skolstrejk för Klimatet’. In this sense, the photograph has become a meme into which other individuals can insert themselves with their own banners and thus express their personal engagement for combating climate change, as well as their personal identity and adherence to a diffuse online community that pursues the same objectives. Across three kinds of social media, Twitter, Facebook, and Instagram, Greta’s most frequent posts are photographs of herself with a hand painted banner on which is written ‘Skolstrejk för Klimatet’ behind various kinds of backgrounds, depending on where she was currently travelling. These photographs have become global icons, ‘images that circulate immediately to a worldwide audience generating an emotional response’ (Hansen 2016: 271–272).

While photographic reinstallations of Greta Thunberg’s initial images of her climate strike are extraordinarily common across social media, other adaptations of her photographs are less common. On a few occasions, comics, memes, and photographic installations appear that mock Greta, and those are among climate sceptics’ most popular posts, but their popularity still fades in the light of Greta’s photographs and their reinstallations. The one profile adaptation that went similarly viral on social media as the photographs themselves is the text ‘#FacetheClimateEmergency’, which people can superimpose on their profile picture. Just like the photographs with climate strike signs themselves, these profile adaptations allow users to express their personal identity and allegiance to an online community that pursues a valuable cause and become politically active without a very large time commitment.

All the photographs collectively are raising an accusation and a call for action. They are creating an urgency and an immediacy about a trend that forms the backdrop of people’s lives, but which for now allows almost everybody to continue uninhibitedly. In similar, yet different, ways, as in the case of the photograph of the drowned child Alan Kurdi (Alder Nissen et al. 2019), they make an interpellation (Althusser 2001). They address adults and political elites by calling them to responsibility and to action. If adults accept this in-

terpellation, they are accepting the subject position of responsible adults who need to act decisively to mitigate climate change or else carry the responsibility for the impending disaster. The difference to the Alan Kurdi photograph is that Alan Kurdi was a victim, and nothing but a victim, whereas the climate change kids are victims, who derive their agency and their strength from their victimhood. Alan Kurdi had been photographed and his image spread on social and mass media without him doing anything about it. His dead body was a passive object that happened to become the carrier of a message, unwittingly. Greta Thunberg and her followers are the active carriers of their own messages; they are voicing their victimhood and demanding for action.

Of course, the success of Greta Thunberg and the Fridays for Future movement is not limited to social media engagement. If it had stayed exclusively a social media phenomenon, it would not have reached the level of success, urgency, and staying power that is putting political leaders under pressure to do something to mitigate climate change. Mass rallies and protests were important; Greta Thunberg's articulation skills, her unique charisma, and her ability to deliver trenching speeches in front of large crowds enabled her to attain the high-level podia. Those speeches were recorded and shared as videos on social media. Social media were the important launching pad that allowed this tiny, introverted, and emotional teenager to reach the world stage, and they provide a feedback loop through which her and the movement's messages can circulate and influence ever larger crowds. It was thanks to social media that an estimated 1.6 million children and teenagers in 125 countries across the world protested against climate change in mid-March 2019. According to a survey undertaken at the strike, social media were the most important information channels for participants to find out about the strike (Wahlström et al. 2019: 14). 45% of the school students who participated in the march said that Greta Thunberg was a factor in their decision to join the climate strike (Wahlström et al. 2019: 5). On 20 September 2019, the probably largest climate protest in world history occurred (Marris 2019). 'It is drama, it is novelty, it is authenticity, and it is catastrophe' (Nisbet in Marris 2019: 472) – all the things that engender large user engagement on social media. Pictures of the protests circulate on social media and through a positive feedback loop generate larger followership.

Not everybody has responded to Greta Thunberg and the Fridays for Future imagery in the same way. She has provoked some angry reactions. Some have mocked her for her relative luxury in comparison to impoverished children in Africa. People have attacked her dress choices as not being in line with fashion. Some have ridiculed her emotionality. Others have claimed that teenagers cannot possibly have political agency. By and large, however, the response has been one of admiration and support.

Greta Thunberg has moved from the status of a networked microcelebrity to a globally known cultural icon. Social media were crucial in her success. And

she was successful on social media because as a teenage girl she could use her vulnerability, a unique aesthetic style (that appears entirely unaesthetic), and emotionally charged messaging to obtain attention online and disseminate her message for the need of profound political change.

European policy makers realize the power Greta Thunberg possesses. European Commission President Ursula von der Leyen invited Greta Thunberg to the European Commission on 4 March 2020, the day the College of Commissioners voted on the Climate Law. In a press communique, Ursula von der Leyen (2020) stated that ‘Greta speaks for many of her generation when she calls for more action to tackle climate change’. In a speech to the European Parliament in which Ursula von der Leyen (2019) introduced the European Green Deal, she explicitly said that ‘only one year ago, no one would have imagined that millions would take to the streets for climate’, and that ‘our children are not passive spectators; they are very active players in this endeavour [...] Our climate pact will be with them, and for them’. She concluded by saying that ‘Europeans are calling on us to drive the change. Now it is up to us, to answer their call’. Frans Timmermans, Vice-President of the European Commission, and responsible for the European Green Deal, has requested Thunberg’s and the climate strike movement’s support for implementing radical reforms to the EU’s Common Agricultural Policy, which they have happily provided on social media. To be sure, Greta Thunberg and the climate strike movement think that the European Green Deal lacks ambition and is not enough to uphold the targets in the Paris agreement (Mathiesen 2021). Yet the fact that world leaders are referencing them when adopting important climate legislation indicates that they have become a crucial legitimating force and thus carry the potential to shape the climate change discourse. The establishment endorsement of the climate strike movement, in turn, helps the movement gain further notoriety and legitimacy.

## 7 Conclusion

In this paper, I have argued that social media hold specific affordances, such as allowing lonely crowds to gather in a virtual space and people to express their identity online and become politically engaged with significantly lower opportunity costs. They permit new kinds of actors to reach large audiences, if those actors succeed in using the affordances social media provide effectively. Against the argument that digitization empowers particularly tech savvy individuals, the present analyses found that specific young women without much tech knowledge have learned to use their vulnerability, aesthetic style, and emotionally charged messages to gain a voice on social media, generate large crowds of followers, and avail themselves of their social media accounts to advocate for political change.

I have focused the analysis on the potential social media hold for shifting the climate change discourse. I studied two kinds of actors who stood to gain from social media: climate sceptics and the climate strike movement, notably Greta Thunberg. The aim was to identify the impact of these actors in shaping the mainstream climate change discourse through their social media usage. The findings demonstrate that while climate sceptics have so far not been able to use the affordances social media provide to their advantage, the climate strike movement, and Greta Thunberg have been extraordinarily successful, and do hold the potential to shift the climate change discourse.

Allan (2017) argued that neither the securitization of climate change nor more scientific certainty about climate change will bring about a solution to the problem, but ‘scientific cosmologies to construct positive visions of a sustainable future’ could (Allan 2017: 818). Allan continued that ‘the problem in climate discourse may be the emphasis on the problem rather than on generating images of the solution’ (2017: 818).

Greta Thunberg and the climate strike movement do securitize the climate and emphasize the problem rather than generating visions of a positive future. Nevertheless, they have succeeded in creating a discursive space that provides room for ‘subjective and normative imaginations of climate alongside the universal, apolitical climate imaginary proffered by science’ (Jasanoff 2010 in Pearce et al. 2018: 9). They are framing climate change as a matter of inter-generational and global justice. Calling upon the responsibility of adults to protect their own children has turned out to be a successful rhetorical strategy. The suggestion is that any individual can in their everyday life make a difference in combating climate change and that the magnitude of the problem does not prevent small people and small acts from acquiring great meaning.

In turn, climate scepticism is not particularly successful on social media. Yet there is a caveat to bear in mind: populism and the ultra-right are thriving in the social media environment and climate scepticism can thrive with these political movements, although some of them espouse environmental conservatism. While climate scepticism does not appear to be a popularity booster or vote catcher for the time being, increasing climate scepticism could become a side effect of a potential increase in the popularity of the ultra-right.

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## Abstract

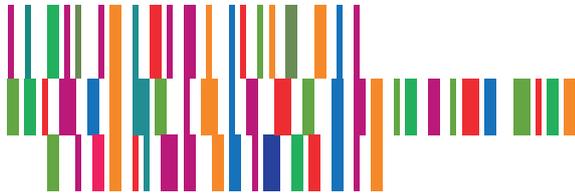
The paper analyses the role of social media in shifting the climate change discourse in the North Atlantic region. Changes in the media environment have removed traditional gatekeepers of information dissemination and empowered new kinds of actors to reach large audiences. Yet, the techniques and the particular messaging through which these audiences can be reached has had to change as well. Messages spread widely on social media if they get shared, liked, retweeted frequently. They need to provoke a reaction in their audience, that leads the audience to actively respond to the messages, be it only with a mouse click. Within the climate change field two new kinds of actors have the potential to seize upon this new opportunity structure: climate sceptics and pro-climate activist social movements. Through a qualitative social media analysis, this paper compares the specific messaging strategies these two communities have deployed. It finds that the climate strike movement, notably led by Greta Thunberg, could effectively seize the opportunities social media provide to reach large audiences. By contrast, climate sceptics have been significantly less successful. Counter-intuitively, the paper finds that digitization can not only empower tech-savvy individuals, but also specific, comparatively low tech, and hitherto marginalized individuals. Notably, young women, if they can draw on their vulnerability, aesthetics, and emotional messaging, can acquire high attention scores when advocating for political change.

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**Key words:** *Climate change, social media, Fridays for Future, climate strike, Greta Thunberg, climate skepticism, social movements, populism, discourse, aesthetics, images*

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