

## **CHANGING THE WORLD THROUGH HASHTAGS: SOCIAL MEDIA AND CLIMATE CHANGE COMMUNICATION**

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### **ABSTRACT**

*In the contemporary era of digitalization, social media has emerged as a powerful and influential tool for communication and activism. With climate change being a pressing global issue, social media also plays its part as a medium of communication to amplify the awareness of this urgent global concern. Social media has not only become a medium to enable individuals and organizations to raise climate change concerns, but it has also established itself as a platform to hold decision-makers and people in power accountable for their actions. This paper explores social media's multifaceted role in enabling and empowering climate action while also studying the shortcomings of social media that hinder climate communication. By employing a qualitative research approach, the researchers analyze how climate change communication is facilitated or hampered through the content analysis of posts from four active Facebook pages dedicated to climate activism, chosen on the basis of the number of followers, accessibility, and the group's engagement. Additionally, this study also analyzes various ways through which social media empowers and enables social activism, such as calls to action, fostering awareness, organizing protests, and other strategies. This research aims to investigate the influence social media has on empowering activism by raising awareness about climate change. However, the researchers acknowledge social media limitations like echo chambers and the dissemination of misinformation.*

**Keywords:** *Climate Change, Climate Communication, Social Media Activism, Climate Action, Echo Chamber.*

### **1. INTRODUCTION**

The social media platforms have offered numerous opportunities. These platforms are a place where the people can argue out and this has

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transformed the traditional means of conveying important social causes such as climate change. Social Media platforms such as Twitter, Instagram, and Facebook have an important role in changing the means of information sharing and consumption. (Saputra, 2023)

The social media networks are not restricted as the means of personal communication but today have also turned into arenas of communal communication and activism. Communication and environmental advocacy Communication has been revolutionized especially in communication of climate change and environmental advocacy.

The social media is vital to create a sense of community and a shared responsibility to deal with the issue of climate change that is significantly serious. These channels of communication offer platforms through which both grassroots level movements and institutional actors can contact people on this burning issue of climate change. (Moser, 2010)

Moreover, the social media gives the users the power to share information like a wildfire. It widens the reach of the message sent by the users through the introduction of a viral and interactive strategy on the method such as the use of keywords, hashtag, and tags, and this leads to a surge in the public interaction and awareness. An example is a social activist, Tarana Burke, in 2006 in her MySpace (a social network) posts (she began using the term Me Too in 2006), the phrase became a hashtag and evolved into a social movement throughout the world. The other instance is the hashtag of Climatestrike, which was popularized by climate activist Greta Thunberg which led to the mobilization of millions of people across the world to take part in climate protests and pressurize policymakers. (Fisher, 2019)

In addition, these spaces have also turned into the voice of oppressed in society. Social media sites serve as a platform through which the marginalized groups in the society can have their voices represented and this is an important aspect to increase the impact of the climate action. (Wang et al., 2018)

## **1.2 Research problem**

The social media is now playing a significant role in information exchange on climate change yet there are various constraints that present considerable challenges to the effectiveness of such information to reach the public. Research shows that echo chambers can restrict users' exposure to different opinions, strengthen what they already believe and preventing accurate climate information from spreading widely (Williams et al., 2015).

Misinformation adds another major challenge. False or misleading posts can shape public understanding of climate change and decline trust in

reliable information (Bessi et al., 2015). These posts spread quickly across platforms, making them difficult to control. Studies also note that discussions on social media are often short-lived, which means they may create temporary reactions instead of encouraging long-term engagement or meaningful action (Allcott & Gentzkow, 2017; Schafer, 2012).

The purpose of this paper is to discuss the empowering and restrictive nature of social media in regards to climate change. These dynamics allow us to use the power of social media as effectively as possible to communicate about climate and mitigate its weaknesses.

### **1.3 Objectives**

1. To analyze the role of social media in facilitating climate change communication.
2. To assess how trending climate change hashtags impact climate activism.
3. To identify the limitations of social media in climate communication.

### **1.4 Research Questions**

1. How do social media enhance climate change communication?
2. What are the recent trends in climate change hashtags, and how do they influence climate activism?
3. What are the limitations of social media in promoting effective climate change communication?

### **1.5 Significance of the study**

This paper will reveal how social media can affect the outcomes of communicating about climate and go about the things that can cripple climate activism. The potential of social media as an awareness-creating tool and a way to mobilize the masses will be realized through this research and more people will be exposed to climate activism. Also in this work, the flaws of social media such as echo chambers and the promotion of fake news, which may undermine effective communication on climate change, are reviewed and clarified. In turn, this research can be effective regarding providing people, climate activists, organizations, and policy makers with information concerning climate action and communication.

### **1.6 Limitations of the study**

The study is restricted to content analysis of Facebook page posts which are about four Facebook pages devoted to climate activism. Whereas these pages were selected based on the followers and activity, they may not

reflect the voice and opinions of the rest of the climate activism community. The results are also reductionary with the narrowing of the magnitude of results because of targeting a single social media system. Other social media applications including Instagram, Tik Tok, X (formerly Twitter) consist of other groups of demographics, user interaction habit that can lead to a different result on the importance of social media on communicating about climate change in comparison to Facebook.

## **2. LITERATURE REVIEW**

One of the most crucial issues that has instigated an alarming situation globally is climate change. This issue continues to become severe with the passage of time. Various initiatives have been proposed to deal with this global problem. Public figures, like influencers, celebrities, political figures, and so on, utilize their position among the public and use their popularity to raise awareness about this alarming matter by being part of different campaigns and utilizing technological advancements. Social media platforms have become the ground of public dialog by providing great opportunities for their users to engage in public debate and put forward their opinions in front of the world. (Fernandez et al., 2016)

The Arab Spring is one such example of effectively utilizing the power of social media to organize and coordinate their goals and mobilize their movements. According to Castells (2012), social media has become a crucial catalyst in shaping networks of protests to achieve a unified goal.

Likewise, McKibben (2019) emphasizes the significance of social media in disseminating information and mobilizing protests, highlighting that hashtags such as #ClimateStrike have connected globally connected people in the fight against climate change.

Moreover, social media has revolutionized environmental communication by encouraging real-time communication among people from all walks of life. Thus, it has enabled a sense of community and awareness for climate change supporters. (Anderson, 2021)

Many studies have explored the connection between the role of social media and public awareness of climate change.

In the study, Network analysis reveals open forums and echo chambers in social media discussions of climate change; the researchers Williams, McMurray, and Kurz (2015) analyzed the attitudes of the X (formerly known as Twitter) users by studying the platform's large dataset toward climate change and found that participants are often divided into like-minded groups or communities and are usually on the extreme ends of the pole. Only a few people's opinions are moderate.

Anderson (2017), in his research, studied the influence of social media on people's opinions, perspectives, and knowledge. The study presented that information exchange can create awareness, and promotes environmentally friendly behavior. Nevertheless, it might also cause opinion silos and support that can have both negative and positive outcomes in the discussion of the climate change issue.

Conferences like the Conference of All Parties (COP) and similar real-world events related to climate change have also contributed to shaping people's perceptions of the issue. These events contribute to the increased value in the creation of awareness and motivate joint actions to find solutions to the problems about climate change. (Pupneja, Zou, L'evy, & Huang, 2023)

Moreover, it is observed that content that stimulates and arouses emotions has a greater impact on people and their perception and has more potency to be shared among the masses. This pattern emphasizes the importance of engaging people emotionally and how it can impact their opinions. It also influences the dissemination of information and climate change communication's effect on social media ( Veltri and Atanasova, 2017) One of the most crucial issues that has instigated an alarming situation globally is climate change. This issue continues to become severe with the passage of time. Various initiatives have been proposed to deal with this global problem. Public figures, like influencers, celebrities, political figures, and similar people, utilize their position among the public and use their popularity to raise awareness about this alarming matter by being part of different campaigns and utilizing technological advancements. A study titled, "How Greenfluencers Boost Climate Action: Why Inspirational Green Leadership Matters" carried on the role of social media influencers working towards promoting sustainability highlights that the social media greenfluencers promote their followers to engage in actions related to climate and their influence increases when they are the ones actively promoting environmental causes. This is mainly because their followers or social media users regard them as inspiration and credible leaders in sustainability. (Hartmann et al., 2025) In a research study conducted by Olivia and Raodatul (2025), the influencers play a significant role in the translation of scientific knowledge into understandable forms to the masses. Social media platforms have become the ground of public dialog by providing great opportunities for users to engage in public debate and express their opinions in front of the world. (Fernandez et al., 2016) The results of a 2024 study suggest that the use of emotional content in Facebook posts, which is uplifting or threat-oriented, is more likely to receive strong engagement. The environmental NGOs usually structure their posts about climate change based on the environmental effects, political activities, and hazards, and these

emotive appeals appear to be instrumental in enhancing the engagement. (Hart et al., 2024)

Social media has proven to be a significant and effective platform where individuals are encouraged to take action on climate and environmental matters. Such functions as hash tags and organized online campaigns contribute to the dissemination of awareness and uniting communities. (Lestari et al., 2025) This advancement of social media has transformed the public discourse and the way people communicate about the issues, especially global issues, like climate change. These social platforms have opened new doors and enable public to indulge in various topics of that matter to them. Social media have provided opportunities to its user to engage in and discuss future initiatives to deal with climate change problem. (Pearce, Nienderer Ozkula, and Querubin, 2018)

Furthermore, researchers Leon Negrodo and Erviti (2020) identified four practical rules for effectively using visuals to disseminate messages on social media platforms. These rules contain four primary features (show real people, tell a story, include a local connection, and show people directly affected) that increase the influence of the visual content by turning it more persuasive and relatable.

The ability to circulate information, gather support, engage global audiences in discussion about climate change have drastically enhanced due to social media platforms. Social media have facilitated real-time communication and created provided new possibilities for activism, the examples of which are climate change hashtags and social media campaign. By understanding these dynamics of social media, this research aims to contribute to more effective climate change communication strategies empowered by social media strengthens, at the same time, addressing its shortcoming.

### **3. METHODOLOGY**

Content analysis is a broad research method that enables researchers to analyze various forms of content, such as text, images, and other multimedia. However, qualitative content analysis is a research method that is widely used for systematically providing the meaning to qualitative data through coding and recognizing themes and patterns. (Hsieh and Shannon, 2005). Qualitative content analysis involves systematically investigating and studying data set through various analytical tools and techniques, such as text mining, and coding.

Content analysis is not limited to any single form of methodology, such as quantitative, qualitative, or mixed methodology, as it can be used in a variety of research contexts. (White and Marsh, 2006)

The study implements a qualitative research methodology, by using thematic analysis to study climate activism on social media platforms. The researchers adopt a purposive and convenience sampling approach to select the data sources.

This study explores the influence social media has on empowering climate change communication, by examining the posts of the four Facebook pages that are related to climate activism. In qualitative research, researchers studies about perspectives, experiences, and insights extensively, and provide detailed understanding of the phenomenon under investigation (Creswell & Creswell, 2017).

### **3.1 Sample Selection**

The researchers selected four Facebook pages dedicated to climate activism as the primary data sources of this study. These pages are selected through purposive and convenience sampling. The selection of these pages was based on the availability of the data, the number of followers, and the page's engagement level. This selection process ensured that the study focuses on influential and active climate activism communities on Facebook.

### **3.2 Data Collection**

The data is gathered from the four Facebook pages (Sunrise Movement, Extinction Rebellion, 350.org, and Indigenous Environmental Network.) which are selected for this study, over the three specific months of 2023 those are April, June, and December. These specific month were selected as Earth Day, World Ocean Day, World Environment Day, and World Climate Day come during these months.

This timeline allows the researchers to understand climate activism communication during duration when climate change communication is at peak. These posts form the primary data set for analysis.

Furthermore, thematic analysis is employed to identify, and analyze patterns and themes within the collected data. The researchers thoroughly read and checked the collected posts to gain a comprehensive understanding of the content. After gaining the insights from the collected data, the researchers then generated initial codes by systematical coding. Later, the themes were developed for the detailed analysis of the dataset with the help of the initial coding.

### **3.3 Coding scheme**

The coding process involves several stages:

1. Initial Coding: Researchers conducted an initial review of the collected posts to identify recurring patterns and themes related to climate change communication and activism.
2. Code Development: Based on the initial review, a set of codes is developed.
3. Code Application: The researchers applied these codes to the collected data, assigning relevant codes/themes to each post.

### **3.4 Data Analysis**

The evidence showed that Facebook is frequently deployed by climate organizations and activists to spread information and create awareness on climate issues. Educational content, news, and opinions of both people and experts are common on posts, as it informs and educates people about the acuity of climate change and its impact on their lives and the world. Besides, different styles of storytelling, such as pictures, movies, tables, are used not only to simplify the complex information but also to make it more interesting and engaging to the population. This method adds both to the involvement but to the promotion and impact of the climate-related material. The interactive aspect of the platform also facilitates and promotes climate communication by stimulating the discussions between the users which can be observed through the high rates of interaction (likes, comments, and shares) of most of the posts analyzed in the process of data collection.

We also see that such hashtags like the ones used in the mobilizing action of the climate strike: the hashtags include ClimateStrike, FridaysForFuture and ActOnClimate, have become effective in mobilizing citizen action and creating awareness about climate change. Not only do these hashtags have a high presence in posts under analysis, but they also seem to play a vital role in organizing and coordinating global movements, i.e., climate strikes and protests.

Besides that, this paper also shows that some hashtags evolve with time, shifting their focus to something other than the actual action or event, like climate justice or social justice. This transformation reflects the idea that social media is not confined to promoting climate activism only. Simultaneously, it supports larger-scale climate movements.

The researchers also identify various other issues related to using social media to communicate climate. One of these limitations of the social media conversation is the dissemination of misinformation and fake news that may leave the masses confused and raise the question of the legitimacy of

climate activism. The existence of echo chambers is another major drawback. The term Echo chamber is used to refer to an environment or a place where user experience is exposed to a content that affirms their pre-existing beliefs. This bias of exposure may interfere with both the reach and the efficacy of climate communication, because it reduces the plurality of viewpoints.

#### **4. DISCUSSION**

Social media has become an important channel for disseminating information about climate change and has helped to increase public awareness and participation, as well as changing people's attitudes towards it through these channels. Through Facebook and other social media networks, the organizations concerned with the issues of the climate change disseminate knowledge, facts, and scientific researches to the general population.

The different accounts of social media discussing climate change serve as a source of educational communication that contributes to the creation of awareness among the population hence; the public would be in a better position to understand the causes, effects, and action to be taken to tackle climate change.

Through the examination of posts made by the active climate organizations, like the 350.org and the Indigenous Environmental Network, one can notice that the most popular organizations utilize social media as a means of distributing educational materials and the views of the experts. Not only does such sharing of information inform the population on the causes, effects, and remedies to climate change but also aids in motivating the population to be more enlightened and participate in dialogue on climate change. The findings are similar to the reported literature, showing how the social media is an essential platform of environmental education and advocacy, which can reach wide and diverse audiences (Velasquez and LaRose, 2015). Additionally, the study introduces the role of the social media in filling the gap and close interaction between climate activists and the masses. Indicatively, interactive content shared by climate activists could motivate people to discuss policy modifications and take action in their local communities as it was demonstrated by posts in the Sunrise Movement. It builds a community that attracts the will to action and when they are supported by communities, a movement can turn its so-called spectators into climate activists (Khan, 2017). Besides, the application of the visual form of the storytelling (with the help of images, videos, and infographics/tables) is also important in order to turn the complex climate data simplified for comprehension. The posts of these pages show that striking visuals, along with brief messages, can increase the knowledge and memory of the general population about simple climate

problems. Not only does this multimedia approach make the process of climate communication more interesting but also there is the process of separating the scientific speech and general knowledge. It has been previously pointed out that visual content is effective to improve message retention and affect the opinion of people, especially when it comes to environmental issues (Lazard and Atkinson, 2015). Another important influence of trending climate change hashtags on activism is also identified in this research. Hashtags like ClimateStrike, FridaysForFuture, ActOnClimate, have served as a rallying cry among the world community, effectively managing to hold massive protests and strikes and raising the voices of youth activists like Greta Thunberg. These hashtag movements have been changing as a local issue to a global theme like climate justice. This movement suggests an increasing awareness of the interconnectivity of the climate movement, with environmental problems increasingly connected to social justice, indigenous rights, and other issues of the world. Such hashtags as ZeroWaste, Gogreen, and PlasticFree, among others, indicate that social media supports the formation of the virtual community that is concerned with sustainable living practices and ultimately translated online activities into the actual ones. Nevertheless, the research also reveals some drawbacks of climate communication with the help of social media. The proliferation of misinformation and fake news are one of the biggest issues since it might weaken the message concerning climate change and the realism of the message, and misguide the masses. The fact that social media platforms are based on algorithms tend to give preference to sensational over factual information, exacerbating the misinformation issue (Schmidt et al., 2017). Moreover, the so-called effect of echo chambers, in which users are exposed to information that mostly confirms their existing ideas, reduces the success of climate communication activities. There are pages which are likely to be dealing mainly with the supporters as opposed to a wider and more diversified audience. Moreover, the paper proposes that although the posts made using social media attract a lot of engagement in terms of likes, shares as well as comments, they do not necessarily reflect on action.

## **5. CONCLUSION**

The paper highlights the duality of the social media in communication around climate change. On the one hand, it is an effective tool of dissemination of information, promotion of community, and activism due to a responsible use of hashtags. At the same time, it has significant drawbacks like misinformation, and echo chambers to its efficiency. These findings provide a rough idea of the benefits and the drawbacks of social media as a tool of climate change communication worth considering the

potential of digital platforms and their use in building public discourse and collecting collective action to protect the environment.

## **6. FUTURE RESEARCH**

The future research should also include social media platforms besides Facebook as they are crucial in the research. This way, scholars will be in a position to draw more knowledge pertaining to climate change communication. In addition, an expanded range of the voices and outlooks of climate activism can provide a more detailed perspective into the involvement of social media in the climate activism. Although this research paper noted the value of social media to increase awareness and further promote online discussions, it requires further research to determine whether online discussions will result in a solid offline response, e.g. attending a climate change demonstration, or joining a policy advocacy campaign, or more sustainable behavior.

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**APPENDIX**  
**Coding Scheme**

<b>s.no</b>	<b>Theme</b>	<b>Code</b>	<b>Description</b>
<b>01.</b>	Facilitation of Climate Change Communication	Information Dissemination	Sharing educational content, research, and expert opinions to raise awareness about climate change.
		Public Engagement and Interaction	Posts encouraging public discussions, comments, and shares to increase involvement in climate-related topics.
		Visual Storytelling and Multimedia Use	Utilizing images, videos, infographics, and other multimedia tools to make climate data more engaging and understandable.
		Calls to Action	Posts prompting specific actions like signing petitions, attending events, or participating in local initiatives.
		Collaborative Efforts	Coordinating efforts and building networks among various climate groups and activists to enhance outreach and impact.
<b>02.</b>	Impact of Trending Climate Change Hashtags on Activism	Hashtag Visibility and Virality	Use of popular hashtags (e.g., #ClimateStrike, #FridaysForFuture) to increase visibility and reach of climate issues.
		Organizing Global Protests	Organizing and promoting global climate protests and strikes using trending hashtags.
		Highlighting Related Issues	Use of hashtags that highlight related issues (e.g., #ClimateJustice, #NoDAPL) linking climate action to broader social and environmental justice.
		Community Building through Hashtags	Building a sense of belonging and unity among activists and supporters through shared hashtags.
<b>03.</b>	Limitations of Social Media in Climate Communication	Misinformation and Fake News Spread	The spread of inaccurate or misleading information about climate change on social media platforms.
		Echo Chambers and Confirmation Bias	Creation of online spaces where users are only exposed to information that reinforces their existing beliefs.