

Research Paper



Emotional resonance in transnational digital climate activism: exploring the perspectives of university students in Darmstadt

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ABSTRACT

In the face of the profound consequences of climate change, there is a growing need to explore how emotions transcend borders in the digital realm and to recognize the central role emotions play in cultivating international solidarity. This study examines the emotional landscape of transnational digital climate activism from the perspective of university students in Darmstadt, Germany. Through a survey of 192 participants, it seeks to understand the potential of emotional resonance to mobilize collective action and foster a sense of global interconnectedness. By capturing students' thoughts and feelings, the study enriches our understanding of emotional resonance in this context and offers practical recommendations for harnessing its power to drive sustainable environmental transformation.



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1. INTRODUCTION

In recent years, digital technologies and social media platforms have expanded the reach of climate activists, allowing them to transcend geographical boundaries and connect with a global audience. While existing research consistently highlights the power of emotions and beliefs in shaping public opinion and collective action [1], [2], the specific mechanisms through which emotional resonance influences transnational digital climate activism remain relatively unexplored. Transnational digital climate activism uses digital technologies to raise awareness of climate change, mobilize individuals, and influence government and corporate policies and practices [3]; it facilitates global networking and collaboration against the climate crisis and accelerates the dissemination of information and ideas [4]. Students have become increasingly instrumental in digital activism, using social media, websites, and other digital tools to raise awareness, organize protests, and press governments and corporations for change [5]. A critical aspect deserving further exploration is the role of emotional resonance: understanding how it influences the perceptions of students engaged in this movement can shed light on how emotional connections shape students' perspectives on climate change and their role in addressing it [6].

2. RELATED WORK

Previous research on transnational digital climate activism and emotional resonance has focused predominantly on the role of emotions in social movements and on the impact of digital technologies on climate activism. Fiske and Taylor [1] explored how emotion and cognition shape social behaviour, and van der Linden et al. [2] examined how beliefs about the scientific consensus influence support for climate action. Carless and Hackworth [3] provided insights into the practical use of digital tools in climate activism, highlighting how these technologies enable activists to transcend geographical boundaries and mobilize global support, although case-study methods may not fully capture broader trends. The present research builds on these foundations by examining how emotional resonance affects transnational digital climate activism from the perspective of university students, exploring the intersection of emotional engagement and digital tools.

2.1 Emergence and Evolution of Digital Climate Activism

Digital technologies have transformed communication, organization, and mobilization in the climate change movement, connecting activists globally, facilitating the sharing of information and resources, and supporting campaigns that raise awareness of the climate crisis and press governments and businesses to act [7]. Digital climate activism has its roots in the 1990s: the 1992 Earth Summit in Rio de Janeiro led to the United Nations Framework Convention on Climate Change (UNFCCC), whose website became a key online hub for climate information [8]. In 1997, the Kyoto Protocol, with binding greenhouse gas reduction targets, was adopted at COP3 in Kyoto, and its website became another vital online resource [9].

Climate activism shifted significantly with the proliferation of social media in the 2000s. Platforms such as Facebook, Twitter, and Instagram simplified communication and information sharing, raising climate awareness and mobilizing collective action [10]. A prominent example is the #FridaysForFuture movement initiated by Greta Thunberg in 2018, whose school strikes and use of social media ignited a global movement drawing millions into strikes and protests [11]. Social media platforms have become powerful tools for mobilization and organization, allowing activists and organizations to disseminate information, interact with supporters, and coordinate action globally [12], and hashtags such as #FridaysForFuture and #ClimateStrike have become rallying points that unite people across borders [13]. Digital technologies also enable the rapid dissemination of information and ideas [14], with online forums, blogs, multimedia content, and data visualization tools allowing activists to share knowledge, strategies, and success stories [15]. Digital climate activism also includes online petitions, crowdfunding platforms for climate initiatives, and online platforms for connecting activists [16], [17], and emerging technologies such as virtual reality and artificial intelligence are being explored to raise awareness and mobilize action [10].

2.2 Emotional Resonance in Climate Change Activism

Emotional resonance is a crucial dimension of climate change activism, able to influence individuals' perceptions, engagement, and actions through messages, stories, and actions that evoke emotional responses and motivate audiences to address the climate crisis [18]. Messages that tap into emotions such as fear, empathy, hope, and anger can be particularly effective in conveying the urgency and gravity of climate change [19]. Narratives that evoke empathy for vulnerable communities affected by climate-related disasters can galvanize support for mitigation and adaptation [20], and stories that instill hope about the potential for positive change can inspire individual and collective action [21]. Emotional resonance also fosters a sense of collective identity among climate activists by creating shared emotional experiences [22], strengthening solidarity and long-term engagement. Human stories, often more emotionally resonant than abstract statistics, make climate change more relatable and elicit empathy [19]. While fear and anger can motivate action, positive emotions such as hope and optimism are equally important, and narratives highlighting successful initiatives and innovative solutions can foster engagement and support for climate action [23]. Because what resonates emotionally in one culture or community may not have the same effect in another, messages should be tailored to the emotional triggers of different audiences to broaden the reach and impact of climate activism [24].

3. METHOD

The research used an exploratory survey of students at two universities in Darmstadt, Germany—Hochschule Darmstadt and TU Darmstadt—to examine students' perceptions of the impact of emotional resonance in transnational digital climate activism. Participants were selected by convenience sampling to obtain perspectives from a diverse group of students. In total, 192 students took part, 105 female (54.7%) and 87 male (45.3%), aged 18 to 30 years. The study does not seek to generalize broadly but aims to approximate the perceptions of students in this specific context; the two universities were chosen for convenience, giving the researcher ready access to students from both institutions.

4. RESULTS

4.1 Students' Awareness of Digital Climate Change Activism

The first part of the survey assessed students' awareness of digital climate change activism and their use of online platforms dedicated to this issue. About 47.8% of participants reported actively seeking information about climate change (Figure 1).

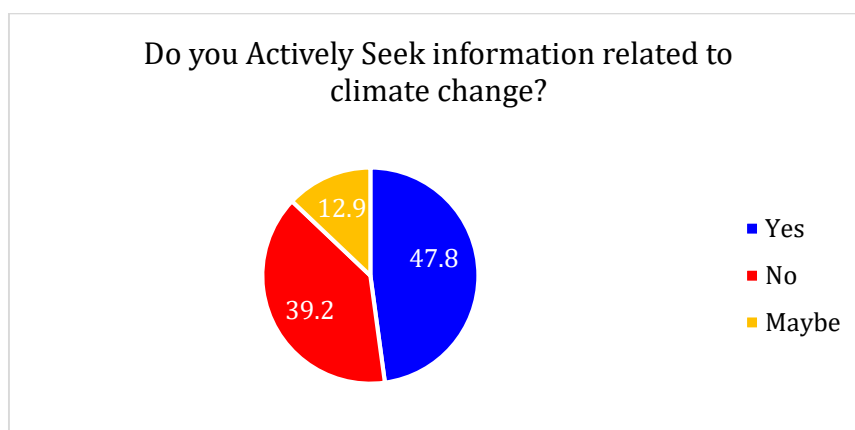


Figure 1. Responses to "Do you Actively Seek Information Related to Climate Change?"

Asked which platforms they use to obtain climate-related information (Figure 2), 87.8% of respondents indicated social media, 39.2% radio, 31.2% television, 17.5% dedicated climate change

websites, and 11.6% mainstream news websites. Thus, despite the wide availability of information through mainstream news outlets, students place considerable value on social media sources.

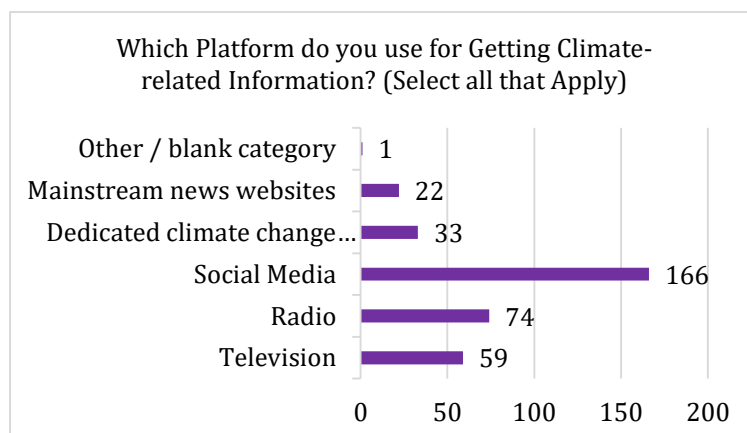


Figure 2. Platforms used for Obtaining Climate-Related Information (Multiple Responses Allowed)

Regarding the frequency of engagement with climate change content on social media (Figure 3), 48.1% of respondents engage with climate change posts monthly and 33.3% weekly. As for the aspects of climate change activism that interest them most (Figure 4), 69.8% of respondents expressed interest in climate-related events and news, 43.4% in climate change science and policy, 39.2% in environmental activism and sustainability, and 19.6% in climate change solutions and innovations.

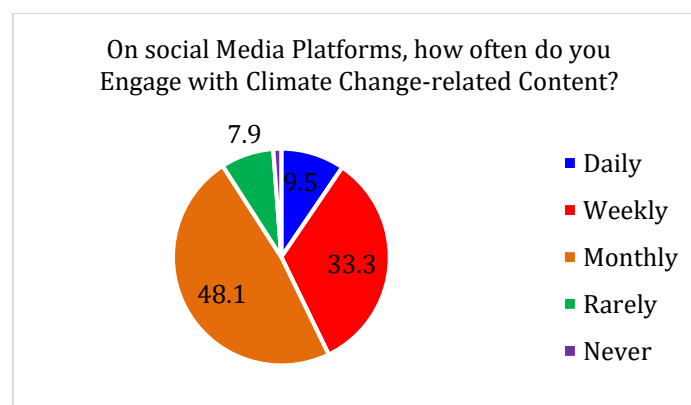


Figure 3. Frequency of Engagement with Climate Change-related Content on Social Media

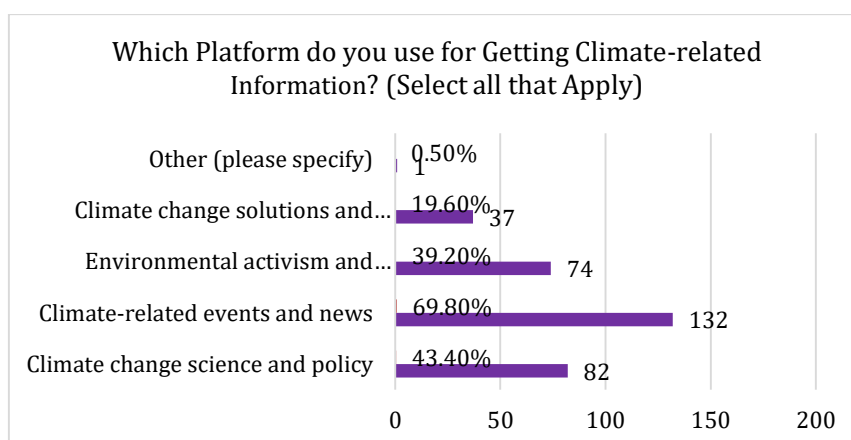


Figure 4. Aspects of Climate Change Activism of Greatest Interest (up to three Responses)

Regarding critical evaluation of climate change information (Figure 5 and Figure 6), 51.1% of students always cross-reference information from multiple sources to verify its accuracy and reliability and 42% do so sometimes. Of those who cross-reference, 43.1% do so to validate the initial information received and 52.7% to enrich their understanding, while about 4% cited other motivations.

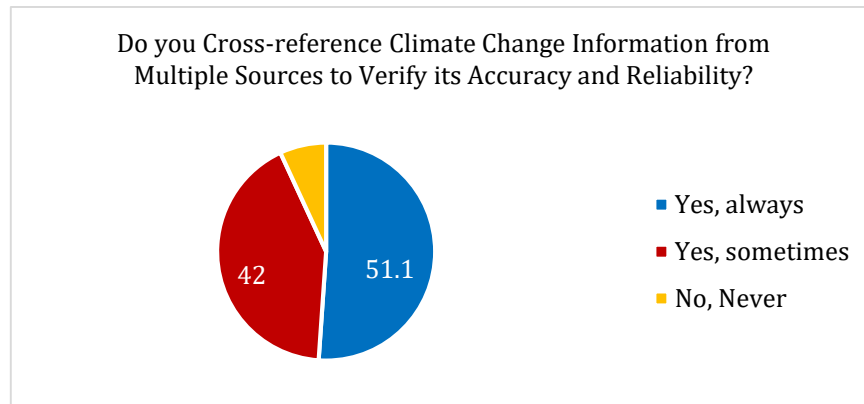


Figure 5. Cross-referencing of Climate Change Information from Multiple Sources

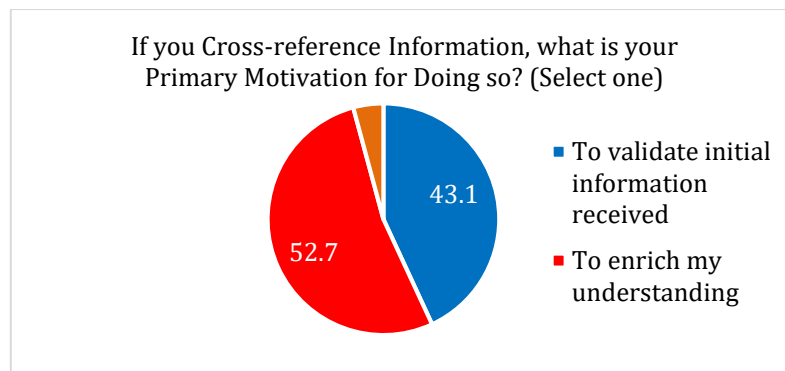


Figure 6. Primary Motivation for cross-Referencing Climate Change Information

Regarding discussion of climate change with their networks (Figure 7), 36.2% of respondents discuss climate change-related content with friends and family weekly, 33% monthly, and 16.5% daily, underscoring the salience of the issue in their social interactions. Overall, these results show the multifaceted nature of students' interactions with climate-related information in the digital landscape, including their information-seeking behaviour and communication patterns.

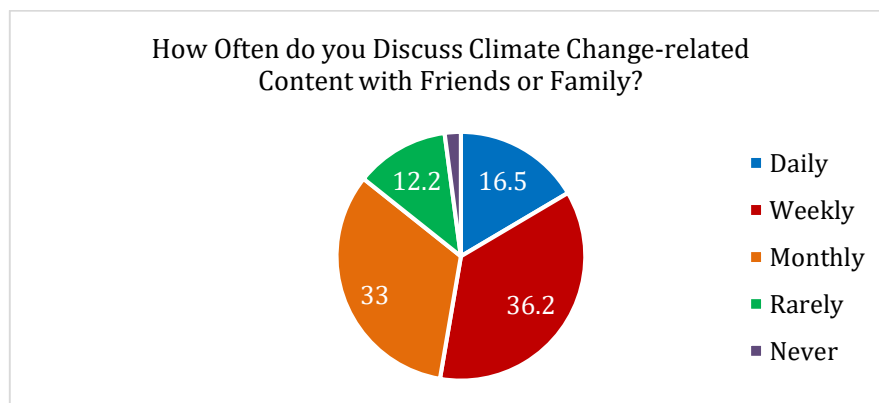


Figure 7. Frequency of Discussing Climate Change-related Content with Friends or Family

4.2 Students' Perceptions of Emotional Resonance in Climate Change Messaging

The survey also assessed students' opinions on the effectiveness of emotional resonance in climate change activism messages, where emotional resonance refers to the capacity of a message to elicit strong emotional reactions, such as empathy, concern, or urgency, that create a personal connection with the audience and inspire action. As Figure 8 shows, 39.2% of participants consider emotional resonance very effective, 41.3% somewhat effective, and 14.3% are neutral, while about 5% consider it not very effective or not effective at all.

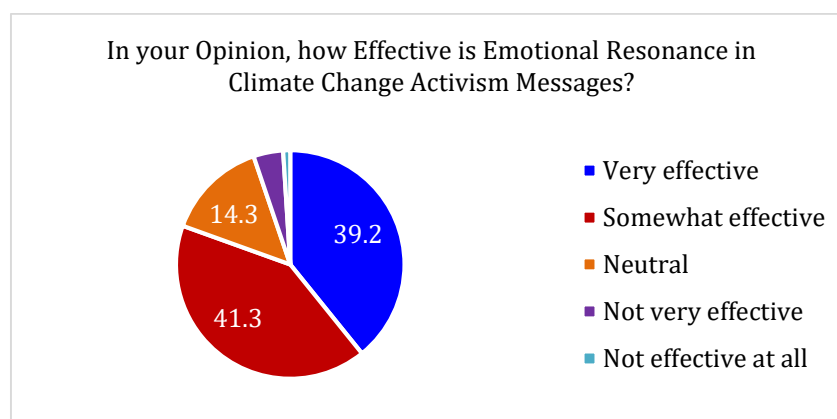


Figure 8. Perceived Effectiveness of Emotional Resonance in Climate Change Activism Messages

Students were also invited to describe personal experiences with climate change messages that had resonated with them emotionally. Examples include the following:

- “The emotional resonance in certain climate change messages drove me to take concrete steps. For instance, I shared a video about the impact of climate change on wildlife with my social network. It sparked conversations and prompted some of my friends to get involved too.” (Student 1)
- “When I came across a deeply emotional climate change documentary, it had a profound impact on me. I was moved to join a local environmental group that organizes clean-up events. It made me realize the urgency of the situation and inspired me to do something about it.” (Student 2)
- “I often encounter emotional climate-related posts on social media. While they do raise my awareness and concern, I must admit that they haven’t directly motivated me to participate in events or initiatives. I prefer contributing in other ways, like donating to environmental organizations.” (Student 3)
- “One emotional message, in particular, struck a chord with me. It was about the impact of climate change on vulnerable communities. It inspired me to support a local climate charity by volunteering my time at their awareness campaigns. Emotional resonance was a catalyst for my involvement.” (Student 4)

4.3 Discussion

The predominance of social media as a source of climate change information signifies a significant shift in students' information consumption [12]; this preference for social media over traditional news outlets underscores the influential role of digital platforms in shaping climate consciousness. The high frequency of engagement and strong interest in climate-related events highlight students' active involvement in digital climate activism and the potential of these platforms for fostering awareness and engagement. Students also take a discerning approach to evaluating climate change information [14]: cross-referencing multiple sources reflects a commitment to reliability, a digital literacy that is crucial in an era of rapidly spreading misinformation.

Students' responses to emotional resonance in climate messaging vary [19]. While most perceive emotional resonance as effective, individual accounts show diverse impacts, from concrete actions to alternative forms of contribution, suggesting that emotionally resonant climate messages should be crafted to address various perspectives and motivations. Strategically leveraging emotional resonance can help

mobilize collective action [18], and tailoring messages to diverse emotional triggers, such as empathy, concern, or hope, may enhance the impact of climate activism, particularly on the social media platforms where students actively engage. The study's sample from two universities in Darmstadt calls for caution in generalizing the findings; future research could explore variations across regions and demographics, and longitudinal studies could examine the evolving nature of emotional resonance and its sustained effect on students' attitudes and behaviour.

5. CONCLUSION

In the face of the profound consequences of climate change, emotions play an increasingly apparent role in mobilizing international solidarity and driving meaningful change. Digital technologies and social media have allowed climate activists to transcend geographical boundaries, connect with a global audience, and leverage the power of emotional resonance, and transnational digital climate activism has become a formidable force in raising awareness, mobilizing individuals, and influencing policies and practices. Students have assumed central roles in this activism, using social media, websites, and digital tools to raise awareness, organize protests, and press governments and corporations to act.

The findings show that students perceive emotional resonance as an effective tool in climate change messaging: most find it very or somewhat effective in inspiring engagement and action, and their personal experiences confirm that emotionally resonant messages can prompt concrete steps, spark conversations, inspire involvement, and raise awareness. The study thus illuminates the role of emotional resonance in transnational digital climate activism and offers practical recommendations for harnessing its potential to drive sustainable environmental transformation.

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Authors Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Sunday Okafor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

Conflict of Interest Statement

No conflict of interest.

Informed Consent

Not Applicable.

Ethical Approval

Not Applicable.

Data Availability

This study draws on publicly available data. No new datasets were created.

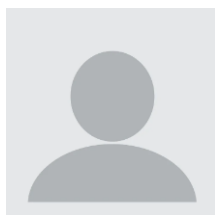
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