Article

Fridays for Future and Mondays for Memes: How Climate Crisis Memes Mobilize Social Media Users

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Abstract
Modern protest movements rely on digital activism on social media, which serves as a conduit for mobilization. In the social media landscape, internet memes have emerged as a popular practice of expressing political protest. Although it is known that social media facilitates mobilization, researchers have neglected how distinct types of content affect mobilization. Moreover, research regarding users' perspectives on mobilization through memes is lacking. To close these research gaps, this study investigates memes in the context of climate protest mobilization. Based on the four-step model of mobilization, a survey of users who create and share memes related to the Fridays for Future movement on social media (N = 325) revealed that the prosumption of climate crisis memes increases users' issue involvement and strengthens their online networks. These factors serve as crucial mediators in the relationship between users' prosumption of climate crisis memes and political participation. The results suggest that mobilization through memes is effective at raising awareness of political issues and strengthening online discussion networks, which means that it has strategic potential for protest movements. By looking at memes from the perspective of their creators and examining a specific type of social media content, this study contributes to the literature on digital mobilization.

1. Introduction

Digital activism is a crucial pillar of modern protest movements. In this context, social media serves as an important communication channel by allowing users to quickly and easily share information and mobilize others. It enables people to connect with others who share their opinions and facilitates the creation of virtual communities that can amplify a movement's messages and spark public debate. Research on protest movements, such as the Arab Spring or Black Lives Matter, has highlighted the potential of internet memes for the expres-

sion of political opinions, digitally networked participation, and mobilization via social media (Moreno-Almeida, 2021; Williams, 2020). In addition, memes make up a significant portion of visual communication about climate change on social media (Mooseder et al., 2023). The term meme describes cultural units that are transferred between humans by imitation (Dawkins, 1976). Internet memes refer to digital units that are created and shared via social media based on imitation and adaptation (Shifman, 2014). Memes are highly relevant to and intertwined with the political sphere because they can contribute to political advocacy, grassroots action, the

expression of political opinions, and public discussion (Shifman, 2014).

One global movement that relies significantly on mobilization and participation via social media is Fridays for Future (FFF). Social media plays a significant role in the FFF movement in various countries and regions all over the world. This movement's broad social media presence is important for its actions, as social media serves as a central source of information and is crucial for the mobilization of supporters. Moreover, the FFF initiator Greta Thunberg and other activists use social media to foster mobilization and build a collective identity (Brünker et al., 2019). The iconicity of Greta Thunberg, who is often portrayed as courageous and heroic, has supported both the memeification of FFF-related communication and the use of memes by the movement itself (Olesen, 2022). However, in addition, to support and advocacy, her strong presence on social media has also led to controversial discussions, contentious debates, and hostile follow-up communication, which have mobilized both FFF supporters and opponents (Murphy, 2021). For example, the social media campaign Mondays for Memes by FFF Germany illustrates the idea of mobilization through memes (see Figure 1).

Generally, there is a broad consensus that social media facilitates mobilization (Boulianne et al., 2020). However, researchers have neglected how specific types of content on social media, such as memes, affect mobilization. Other than a recent study by Zhang and Pinto (2021), the mobilization potential of memes has been demonstrated only through single case studies at the meso level. Given the popularity of memes and their frequent presence in online political discourses, it is important to consider their potential for mobilizing social media users. To address these research gaps in the literature, we investigated the role of internet memes in the climate protest mobilization process. More specifically, we conducted a quantitative online survey of social media users who create and share memes in the contexts of FFF and climate protest. Based on the four-step model of mobilization (Klandermans & Oegema, 1987), we examined the crucial procedural steps of mobilization and the significance of memes for participatory outcomes.

The goal of this study was twofold. First, by empirically examining the role of memes in the mobilization process, we aimed to contribute to the research on activism and mobilization by focusing on a specific type of content on social media. Second, our goal was to expand the horizon of political internet meme studies because there is "little published research that examines memes in the context of their audiences" (Huntington, 2020, p. 195). By looking at memes from the perspective of their creators and examining their potential for micromobilization (Nekmat & Ismail, 2019), we wanted to provide a more holistic understanding of a phenomenon that is becoming more and more popular among users and activist movements.

2. Literature Review

2.1. The Significance of Internet Memes in Online Political Discourses

Memes exist in various forms, such as pieces of information or specific cultural practices. Although the concept originated in the field of evolutionary biology (Dawkins, 1976), internet memes have become particularly
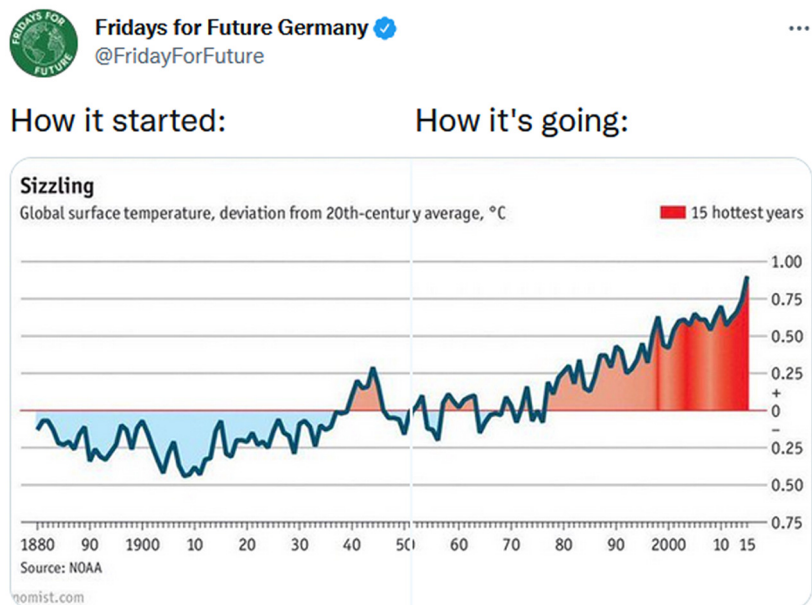
Figure 1. Memes created and shared by FFF Germany. Sources: Fridays for Future Deutschland (2020, left); Fridays for Future Germany (2020, right).

relevant to digital culture. Internet memes can be defined as "(a) a group of digital items sharing common characteristics of content, form, and/or stance, which (b) were created with awareness of each other, and (c) were circulated, imitated, and/or transformed via the Internet by many users" (Shifman, 2014, p. 41). Internet memes spread through imitation and are individually adapted when transmitted. Consequently, memes rely on the process of prosumption—that is, an interconnected process of production and consumption (Yamamoto et al., 2020). Prosumption occurs in various forms on the internet and plays a highly distinct role in the dissemination logic of memes. In the meme context, users act as prosumers because the processes of production and consumption are continuously intertwined due to the imitational character of memes. Meme production encompasses the creation of new meme adaptations as well as the recontextualization and exchange of previous adaptations. Although consuming a meme does not automatically lead to the production of further adaptations (e.g., in the cases of incidental exposure, passive use, and lurking), a meme's diffusion always relies on the previous consumption of existing adaptations.

Internet memes appear in different formats and genres, but the most common form involves image macros that use adaptable patterns of images superimposed with customized text. Meme generators offer low-threshold opportunities to produce and share image macros as well as GIFs and video memes (Moreno-Almeida, 2021). From a genre perspective, political memes have emerged as companions to political events, decisions, and discourses (Johann & Bülow, 2019). Political memes serve as a means of persuasion and expression of grassroots actions. In addition, they are used as forms of individual and collective expressions of opinions and identities (Johann, 2022; Shifman, 2014).

The relevance and effectiveness of political memes are rooted in their affective nature because emotions are also central to politics. Functioning as a kind of "politics-emotion nexus" (Demertzis, 2013, p. 265), political memes serve numerous purposes, such as reacting to political events, fortifying political identities and hostilities, or influencing the general discourse (Dean, 2019). Focusing on the emotional connection between memes and politics, we argue that memes and participation in the online climate crisis discourse are a perfect match. Research has shown that emotions significantly affect climate activism and people's views on the climate crisis because emotions are connected to a sense of agency and efficacy, which triggers decisions and actions (e.g., Brosch, 2021). Moreover, in the specific context of the FFF, there is evidence that emotions play a critical role in this movement's mobilization of people and that the use of emotion on social media is an important factor in the success of the movement (Brünker et al., 2019). Therefore, we argue that climate crisis memes have mobilizational potential.

2.2. Mobilization Through Internet Memes

A large body of research suggests that the prosumption of political information is related to participatory outcomes (Boulianne et al., 2020; Yamamoto et al., 2020). This link has been confirmed for the prosumption of political memes in general (Johann, 2022) and for climate crisis memes in particular (Zhang & Pinto, 2021). Given the broad empirical evidence, we argue that the prosumption of political information is not merely a conceptual component of political participation but functions as the spark that ignites participatory outcomes. Therefore, meme prosumption can be seen as a form of political expression that "is conceptually distinct from political participation in the way that political talk is distinct from political action" (Gil de Zúñiga et al., 2014, p. 614). Another baseline assumption is that the relationship between expression and participation is characterized by complex dynamics in which mobilization functions as a bridging concept.

Understanding mobilization as a "process of increasing the readiness to act collectively" (Gamson, 1975, p. 15), we argue that different conceptual components of mobilization serve as mediators in the relationship between the prosumption of climate-crisis and FFF-related memes and the political participation of users. Political participation refers to the opportunities available for citizens to influence political decision-making (Vissers & Stolle, 2014). Political participation encompasses traditional and institutionalized forms of participation, such as voting, campaigning, civic engagement, and protest, as well as individualistic forms that are closely linked to the rise of new forms of political expression and engagement on social media, such as political consumerism, digitally networked participation, and creative forms of participation (Theocharis, 2015; Theocharis & de Moor, 2021). Thus, we argue that meme prosumption in the sense of "sharing political content or using social media to mobilize others for political purposes" (Theocharis & van Deth, 2018, p. 19) can be treated as a conceptual starting point for empirically investigating the mediating role of mobilization in the relationship between meme usage and participatory outcomes.

There are several approaches to conceptualizing mobilization. In this study, we followed Boulianne et al. (2020) in transferring the four-step model of mobilization (Klandermans & Oegema, 1987) into the social media context. The four-step model is a framework for understanding how individuals become actively involved in social and political movements. This model describes four steps in the mobilization process that individuals must pass through on their way to participating in collective action: (a) mobilization potential, (b) recruitment networks, (c) motivation to participate, and (d) barriers to participation. In addition to adapting this theoretical framework to the specific context of memes, we used a case study approach (Boulianne et al., 2020;

Klandermans & Oegema, 1987) to explore how the prosumption of memes affects the cognitive processes that initiate individual mobilization and participation processes. In our study, these steps served as mediators in explaining political participation. Note that these steps do not have to be implemented one after another; rather, they overlap and occur in parallel (Klandermans & Oegema, 1987; Oegema & Klandermans, 1994; Walgrave & Manssens, 2000).

2.2.1. Mobilization Potential

Mobilization potential refers to individuals who can be activated by a movement. For this to happen, people need to have a positive stance toward the movement, support its positions (Klandermans & Oegema, 1987), and "agree with the goals" (Boulianne et al., 2020, p. 644) of the movement. Although it can be expected that protest movements, such as the FFF, primarily mobilize their supporters (Norris et al., 2005), online communication and social media have led to a more diverse structure of protesters (Walgrave et al., 2011, 2022). Therefore, it is also possible that not all mobilized participants support the FFF's positions. Memes can also serve as a means of expressing criticism and counter-positions. In this regard, we expected that users' issue involvement would function as an important conduit for deploying a movement's mobilization potential (Nekmat & Ismail, 2019). Issue involvement refers to the degree to which an attitudinal issue is perceived to be of individual importance (Petty & Cacioppo, 1979). Because political memes address salient societal topics and serve as vehicles for individual opinions and criticism, climate crisis memes can raise users' awareness of climate change discourse and climate activism. Consequently, the prosumption of such memes can enhance users' issue involvement and the degree to which users perceive social media as an effective outlet for climate activism.

Research has shown that the general use of social media is positively related to using social media for activism (Valenzuela, 2013), which predicts political participation (Chen et al., 2015). In addition, there is evidence that political content has a certain degree of agenda-setting potential by increasing the salience of a political issue on the public agenda (Boukes, 2019). Moreover, incidental exposure to political information, which is the most common way in which users encounter political memes on social media (McLoughlin & Southern, 2021), is likely to increase the perceived importance of the presented political topics (Feezell, 2018). Finally, there is evidence that issue involvement is positively related to participatory outcomes (Nekmat & Ismail, 2019). Therefore, we developed the following hypotheses regarding the mobilization potential of climate crisis memes:

H1: Issue involvement mediates the relationship between the prosumption of climate crisis memes and users' political participation.

H2: The use of social media for activism mediates the relationship between the prosumption of climate crisis memes and users' political participation.

2.2.2. Recruitment Networks

Recruitment networks are key in deploying mobilization potential. Movements need to activate their networks so that people can be targeted by mobilization attempts (Klandermans & Oegema, 1987). Users "need to be asked to participate" (Boulianne et al., 2020, p. 646). Previous studies have indicated that calls for participation that come from close ties have strong effects on political participation (Nekmat et al., 2015). Moreover, receiving messages with political content from friends on social media is positively related to participatory outcomes (Baek, 2015). Researchers have also investigated the effects of discussion network size, concluding that size is positively related to political participation (Gil de Zúñiga et al., 2014). The active use of climate crisis memes in online political discourses can also make users more closely connected to their communities. This idea of network building can be linked to the connective action of memes in loosely organized online communities (Bennett & Segerberg, 2012). Consequently, we posed the following hypotheses:

H3: Discussion network size mediates the relationship between the prosumption of climate crisis memes and users' political participation.

H4: The extent to which users receive memes from friends and acquaintances mediates the relationship between the prosumption of climate crisis memes and users' political participation.

2.2.3. Motivation to Participate

The motivation to participate is "the social-psychological core" (Klandermans, 2004, p. 370) of the mobilization process. Participatory motivation strongly depends on individual expectations for the success of collective action (Klandermans & Oegema, 1987), which means that participatory efficacy is relevant to the success of mobilization. Participatory efficacy can be defined as "the belief that one can make a difference through one's contribution to the collective efforts aimed at achieving group goals" (van Zomeren et al., 2013, p. 619). Research on the use of political news on social media indicates that participatory efficacy mediates the relationship between consuming political news on social media and protest intention (Chan, 2017). Generally, participatory efficacy is positively related to participatory outcomes (Nekmat & Ismail, 2019); this finding also holds for pro-environmental behavior (Bamberg et al., 2015). Moreover, perceived political efficacy is a driver of collective political action, serving as a link between collective identity and behavior and participatory outcomes

(van Zomeren et al., 2008). Based on these considerations, we proposed the following hypothesis:

H5: Perceived participatory efficacy mediates the relationship between the prosumption of climate crisis memes and users' political participation.

The perceived value of a collective good, which is often reflected in individual risk perception, is one construct that is closely linked to expectations of success and functions as a determinant of participatory motivation (Boulianne et al., 2020; Klandermans & Oegema, 1987). Although scholars have shown that in the context of a public health crisis, the use of social media is positively related to individual risk perceptions (Oh et al., 2021), Zhang and Pinto (2021) could not confirm similar effects in their study of climate crisis memes. However, as climate crisis memes often address the risks of the climate crisis, we expected that meme prosumption would be positively related to the perceived value of a collective good. Researchers have also found positive effects of the perception of the climate crisis risks on participatory outcomes (Lubell et al., 2007). Consequently, we posed the following hypothesis:

H6: The perceived value of a collective good mediates the relationship between the prosumption of climate crisis memes and users' political participation.

2.2.4. Barriers to Participation

The model's fourth step refers to barriers to participation, which are closely linked to the perceived costs and benefits of participation (Boulianne et al., 2020; Klandermans & Oegema, 1987). More specifically, "motivation and barriers interact to activate participation" (Klandermans & Oegema, 1987, p. 520). Because the use of social media is strongly driven by specific motives and goals (Park et al., 2009), we argue that barriers to participation are mainly determined by the perceived benefits resulting from participatory actions. In this context, climate-crisis and FFF-related memes can serve as a starting point for political discussion for members of specific social networks, thus reducing barriers to participation (Boulianne et al., 2020; Klandermans, 1984). This assumption is reinforced by the fact that social media in general (Ekström & Shehata, 2018) and memes in particular (Johann, 2022) are regarded as low-threshold opportunities for political engagement and participation. Initial results in the context of collective action have shown that knowing other participants and having a strong collective identity were positively related to the perceived benefits of participation (Zhou & Wang, 2018). As memes carry both individual and collective identity cues, we expected perceived benefits to be reinforced by climate-crisis meme prosumption. Moreover, perceived benefits are also positively related to participatory outcomes (Ihm & Lee, 2021). Therefore, we developed the following hypothesis:

H7: The perceived benefits of participation mediate the relationship between the prosumption of climate crisis memes and users' political participation.

3. Methods

3.1. Data Collection and Sample

We conducted an online survey from May 5 to June 5, 2021. The questionnaire was implemented using SoSciSurvey and was distributed among social media users on fringe web communities (e.g., Reddit) and content-sharing platforms (e.g., Twitter and Instagram). Both fringe web communities and content-sharing platforms constantly add memes to the climate crisis discourse (Treen et al., 2022; Zhang & Pinto, 2021). During the survey period, we invited users who produced climate-crisis and FFF-related memes to participate in the survey by directly contacting them or by posting the survey link in the comment sections. In addition, selected users were asked to forward the survey link to other producers of climate crisis and FFF-related memes. In this context, production refers to the creation of one's own meme adaptations and the recontextualization and sharing of existing meme adaptations. In general, it did not matter what stance the users adopted in their memes. Producers of critical and favorable memes had the same chance of being included in the sample. However, those who identified as supporters of the FFF dominated the sample (M = 4.09, SD = .94 on a 5-point scale; adapted from Chan, 2017). Given this circumstance, the results largely represent the mobilization process of FFF supporters.

In total, 370 users completed the questionnaire and provided informed consent (convenience sample). The respondents consisted of 183 male (49.46%) and 160 female (43.24%) users. Twenty-five users (6.76%) identified as non-binary. Two respondents (.54%) did not provide gender information. The respondents' ages ranged from 14 to 73 years (M = 26.52, SD = 15.30).

3.2. Measures

We measured meme prosumption by following Yamamoto et al. (2020). Respondents were asked to indicate on a 7-point scale (1 = *never or less than once every two weeks* to 7 = *twice or more daily*) how often they were "browsing political internet memes on social media" (BR), "contributing original political internet memes to social media" (CC), "commenting or rating political internet memes on social media" (CR), and "sharing political internet memes with others on social media" (SH). The following index (M = 10.88, SD = 4.71) represented weighted prosumption routines: $(\sqrt{BR \times CC} + \sqrt{BR \times CR} + \sqrt{BR \times SH})$.

Following Nekmat and Ismail (2019), to measure issue involvement ("in your life, you personally find issues related to global warming and the climate

crisis to be"), four items ("relevant/irrelevant," "important/unimportant," "valuable/worthless," and "significant/insignificant") were used along with a 7-point semantic differential scale ($M = 6.59$, $SD = .74$, $\omega = .93$).

To measure the extent to which social media is used for activism, we adapted three items from Chen et al. (2015). The respondents were asked to rate on a 4-point scale (1 = *never* to 4 = *very frequently*) how often they engaged in the following activities: "Joining groups or pages on social media related to the Fridays for Future movement," "encouraging or recommending others to join groups or pages on social media related to the Fridays for Future movement," and "encouraging or recommending others to join a protest and demonstration." We used a summative index to consider social media activism behavior in further analysis ($M = 2.47$, $SD = .91$).

The sizes of users' discussion networks were measured using the following open-ended question (Gil de Zúñiga et al., 2014): "Please give an estimate of the number of people you talked to face-to-face or via phone calls, via the internet, including email, chat rooms, social media, and micro-blogging sites" ($M = 156.04$, $SD = 944.11$).

Two items adapted from Tang and Lee (2013) were used to measure the degree to which the respondents received memes from friends and acquaintances. The respondents were asked to rate on a 4-point scale (1 = *never* to 4 = *very frequently*) how often they received "memes on public affairs" and "memes on policy and political issues" on social media ($M = 2.71$, $SD = .89$, $\omega = .86$).

Following Chan (2017), participatory efficacy was measured based on the following two items and a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*): "I have the ability to contribute to a collective action that influences the government" and "I have the ability to contribute to a collective action that influences society" ($M = 3.80$, $SD = 1.00$, $\omega = .77$).

Using the operationalization of the perceived value of a collective good by Lubell et al. (2007), the respondents were asked to rate the following statements on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*): "Global warming and the climate crisis will have a noticeably negative impact on my health in the next 25 years," "global warming and the climate crisis will have a noticeably negative impact on my economic and financial situation in the next 25 years," and "global warming and the climate crisis will have a noticeably negative impact on the environment in which my family and I live." Moreover, the respondents were asked to evaluate on a 5-point scale (1 = *very little risk* to 5 = *very high risk*) the risks posed by global warming and the climate crisis for the following areas: "Public health in your country," "economic development in your country," and "impact on the environment in your country" ($M = 4.45$, $SD = .66$, $\omega = .80$).

Six items adapted from Ihm and Lee (2021) were used to assess the perceived benefits of participation. The respondents were asked to express their agreement on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) with the following statements: "Participation activities in Fridays for Future have an impact on whether environmentally friendly politics will gain traction in the legislature," "participation activities in Fridays for Future are helpful in shaping public opinion in favor of environmentally friendly politics," "participation activities in Fridays for Future are helpful in influencing the government and policy makers," "participation activities in Fridays for Future express the value of environmentally friendly politics," "participation activities in Fridays for Future will impact environmentally friendly politics," and "participation activities in Fridays for Future give me satisfaction" ($M = 3.99$, $SD = .73$, $\omega = .87$).

To measure political participation, we chose a scale proposed by Theocharis and van Deth (2018). The items of this scale were not adapted to the climate and FFF context because we intended to capture the baseline relationship between meme prosumption and political participation, which has been described in the literature on memes as a "legitimate avenue to political participation" (Ross & Rivers, 2019, p. 976; see also Milner, 2013; Ross & Rivers, 2017; Shifman, 2014). The respondents were asked to indicate whether they participated in the following activities (1 = *yes* and 2 = *no*): "Voted in the last national election," "worked for a party or candidate," "contacted a politician or a state or government official about an issue or problem," "attended a meeting of a political party or other political organization," "donated money to a political party or other political organization," "worked for a political action group," "signed a petition," "joined a demonstration," "donated money to a social, humanitarian or charitable organization," "volunteered in a social, humanitarian or charitable organization," "boycotted certain products for political or ethical reasons," "deliberately bought certain products for political or ethical reasons," "volunteered for a community project," "posted or shared links on social media (Instagram, Twitter, Reddit, etc.) to political stories or articles for others to read," "commented on social media (Instagram, Twitter, Reddit, etc.) on political or social issues," and "encouraged other people to take action on a political or social issue using Instagram, Twitter or other social media platforms." In addition, the respondents were asked whether they had performed expressive actions and were given the opportunity to provide their examples: "During the last twelve months, have you been engaged in any such actions to express your political or social views or concerns?" We calculated a summative index for political participation behavior ($M = 9.23$, $SD = 2.62$).

4. Results

It is rare to find research that would holistically apply the four-step model of mobilization (Klandermans & Oegema, 1987) from the mobilized participants' perspective. Boulianne et al. (2020) used logistic regression

analyses to examine each step's influence on participatory outcomes. Similar studies on mobilization through social media have also mainly relied on regression and mediation analyses (e.g., Baek, 2015; Chen et al., 2015). Regarding the data analysis strategy of this study, it should be noted that the steps of the four-step model do not have to be performed in sequence; rather, they occur in parallel (Klandermans & Oegema, 1987; Oegema & Klandermans, 1994). Walgrave and Manssens (2000) even claimed that these steps represent stages at which potentially mobilized participants can exit the decision-making process, "stages which are not necessarily sequential" (p. 219). Therefore, we used structural equation modeling to test a parallel mediation model.

Correlation analyses were conducted for the main variables (see Table 1). Regarding incremental, descriptive, and inferential statistical fit measures, our model showed a good overall fit ($\chi^2(177) = 322.31$, $CFI = .95$, $TLI = .94$, $RMSEA = .05$ CI [.041, .059]). Post-hoc power analyses suggested a statistical power of >.99 based on RMSEA for our final sample size ($N = 325$; after excluding cases with missing values) and an alpha of .05 (Moshagen, 2022). We added a covariation between the perceived benefits of participation and participatory efficacy because the data strongly suggested a correlation ($r = .45$) between these two variables and because the items partly resembled each other (e.g., participatory efficacy: "I have the ability to contribute to a collective action that influences the government"; perceived benefits: "participation activities in Fridays for Future are helpful in influencing the government and policy makers"). Furthermore, we allowed the variables of network size, receiving memes, and prosumption to covary because bidirectionality was theoretically plausible and because the model produced robust results for both options.

First, the bivariate case revealed only a small positive relationship between the indices for prosumption and political participation ($\beta = .12$, $p = .023$). This was consistent with our overall mediation hypothesis, as we expected the relationship to be determined by more complex, indirect dynamics. The results further demonstrated that meme prosumption was positively related to issue involvement ($\beta = .18$, $p = .002$) and the perceived value of a collective good ($\beta = .22$, $p = .001$). Therefore, prosumption could be said to predominantly highlight the relevance and negative impacts of climate risks for individuals. As predicted, prosumption, network size, and receiving memes covaried, which indicated that prosumption involves larger online networks and a higher probability of receiving memes from this network. Furthermore, the analyses revealed that issue involvement ($\beta = .13$, $p = .015$), social media activism ($\beta = .14$, $p = .003$), and participatory efficacy ($\beta = .22$, $p = .003$) were positively related to political participation. Thus, individuals who are highly involved in climate issues have the impression that they can make a difference through their participation, while those already engaged in activism on social media are likelier to also engage in political participation. Moreover, network size had a medium-sized positive effect on political participation ($\beta = .34$, $p < .001$). Consequently, a mobilization effect for prosumption can be expected to occur due to heightened issue involvement and a larger discussion network size. The single paths are displayed in Table 2.

Taken together, the results supported the claims that issue involvement (H1 supported) and users' network sizes (H3 supported) mediate the relationship between climate-crisis meme prosumption and political participation (see Figure 2). However, we could not fully confirm the mediating role of the other factors, which provides several points for discussion.

5. Discussion and Conclusion

The goal of this study was to investigate the mobilizing power of climate crisis memes using the four-step model of mobilization (Klandermans & Oegema, 1987). The model divides the mobilization process into: (a) mobilization potential, (b) recruitment networks, (c) motivation to participate, and (d) barriers to participation. Based on the existing research on mobilization and political participation, we expected to encounter various

Table 1. Zero-order correlations of the studied variables ($N = 325$).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Involvement	—								
(2) Activism	.08	—							
(3) Collective good	.32***	.13*	—						
(4) Benefits	.19***	.40***	.16**	—					
(5) Efficacy	.14*	.28***	.09	.45***	—				
(6) Network size	−.04	.09	.01	.04	.11*	—			
(7) Receiving memes	.11*	.17**	.20***	.00	.08	.00	—		
(8) Prosumption	.18**	.06	.19**	−.02	.08	.02	.48***	—	
(9) Participation	.20***	.32***	.17**	.25***	.34***	.10	.20***	.11*	—

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Table 2. Path coefficients of the structural equation model (N = 325).

| Mediator	Prosumption[1]				Political participation[2]			
	b	SE	β	p	b	SE	β	p
Involvement	.025	.008	.178	.002	.472	.195	.125	.015
Activism	.010	.011	.055	.325	.395	.135	.143	.003
Collective good	.019	.005	.222	.001	.288	.339	.046	.396
Benefits	−.007	.010	−.039	.516	.095	.211	.031	.653
Efficacy	.015	.014	.066	.279	.512	.171	.216	.003
Network size					.526	.078	.341	.000
Receiving memes					.208	.159	.072	.192

Notes: [1] Prosumption is the independent variable, and the rows represent the dependent variables; [2] political participation is the dependent variable, and the rows represent the independent variables.

mediating factors in memetic mobilization. Although previous research has shown that producing, consuming, and creatively using political information on social media positively affects political participation (Boulianne et al., 2020; Tang & Lee, 2013), our study showed that prosuming climate crisis memes does not automatically lead to participatory outcomes. Instead, due to the complex nature of mobilization, political participation through memes involves various procedural avenues to participation.

Regarding the mobilization potential of climate crisis memes, the analysis showed that issue involvement is
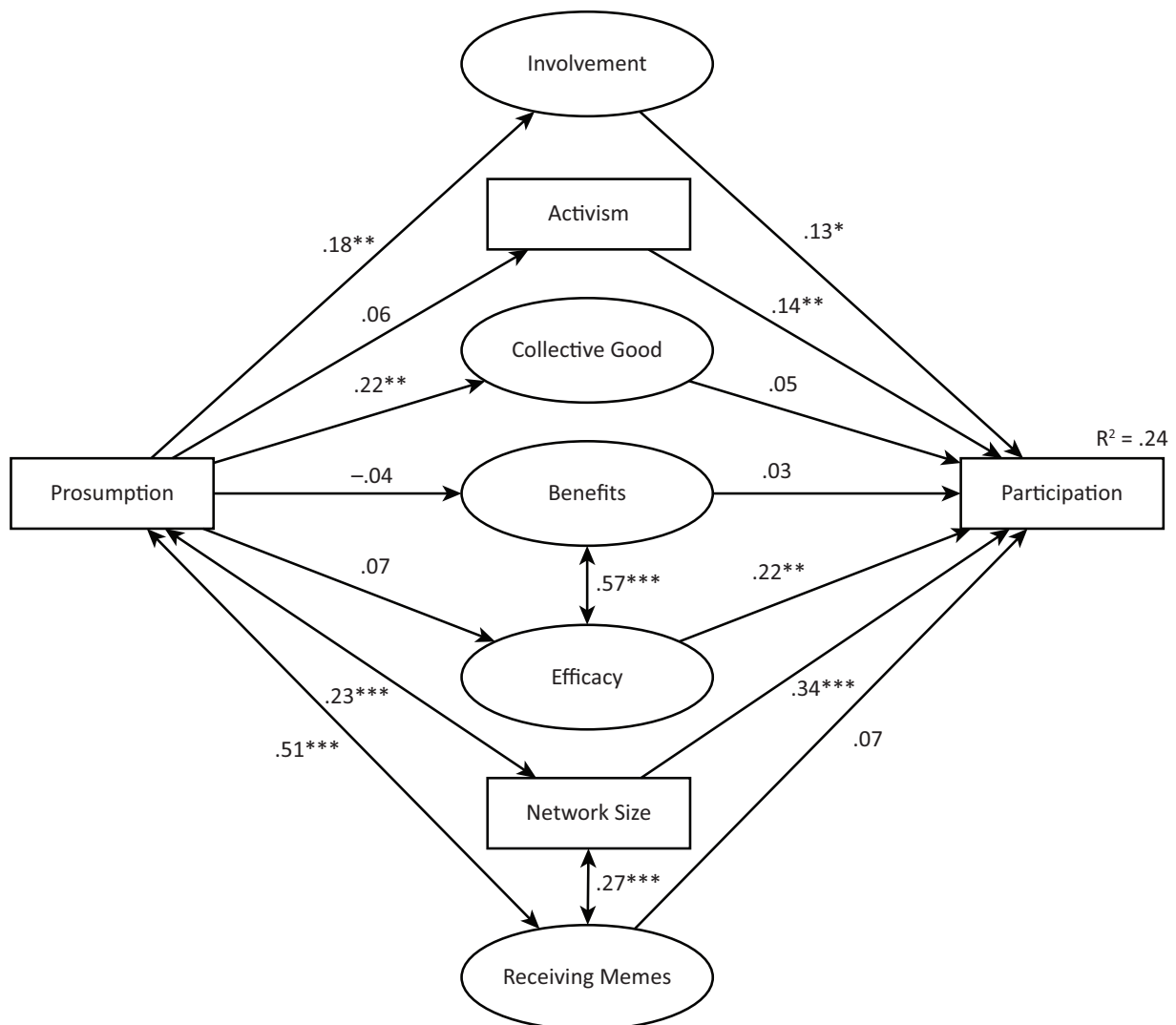
Figure 2. Final structural equation model (N = 325).

a crucial mediator in the mobilization process. Although users' actual engagement in politics profits from higher levels of perceived individual importance (Nekmat & Ismail, 2019), memes have the power to raise awareness regarding the political discourse on climate change. In this sense, the production and consumption of climate crisis memes lower the threshold for participation by highlighting the relevance of socio-political issues and fostering active user involvement. Although our respondents exhibited high levels of identification with the FFF, there was evidence of mobilization beyond established supporters to include diverse protesters related to the climate crisis and the FFF (Walgrave et al., 2011, 2022). Thus, the creative and often humorous process of spreading information about the climate crisis via memes has agenda-setting potential. Previous studies have shown that social media serves as an agenda-setter, particularly when users' political interest is low (Feezell, 2018). Our findings imply that climate crisis memes are not only contagious in terms of individual involvement but can also function as an effective strategic content format for both activist movements and counter-movements when it comes to drawing attention to their own topics and goals.

Regarding recruitment networks, our study highlighted that the prosumption of climate crisis memes was interrelated with users' online discussion network size and the extent to which users received memes from their friends and acquaintances. This is in line with previous findings from online participation research (Gil de Zúñiga et al., 2014; Yamamoto et al., 2020). Moreover, the size of the online discussion network proved to be a mediator when it comes to the relationship between meme prosumption and political participation. In contrast to our expectations, there was no direct relationship between receiving memes from friends and acquaintances and participatory outcomes. However, network size served as a further mediator. Based on these findings, recruitment networks are key when it comes to the mobilization power of memes. As shown by meme diffusion studies (Johann & Bülow, 2019), users' networks are crucial for meme dissemination in online political discourses. The same applies to the deployment of memes' mobilizational and participatory potential. The suggested covariations in our model showed that meme prosumption is not necessarily the starting point for user mobilization. Both the production and consumption of memes have the potential to build up online networks, which reinforces the collective nature of memes and demonstrates that a meme is greater than the sum of its parts. The extent to which users produce and share their own memes after being exposed to others' memes should be investigated in future studies to better understand how the amalgamation of production and consumption supports the establishment of meme networks and mobilizes loosely connected users. In addition, previous studies on the role of recruitment networks in activism have shown that supportive networks serve as pulling forces for individual participation (McAdam, 1986). Whereas our study has primarily examined the quantitative aspects of recruitment networks, future studies could help shed light on the qualitative aspects, such as being asked to participate by the network or the strength of particular network connections.

Our results further suggest that users' motivation to participate and their perceptions of participatory barriers do not play a crucial role in the mobilization process involving climate crisis memes. Although the prosumption of memes was positively related to the perception of the value of a collective good, we could not confirm further implications for participatory outcomes. Thus, climate crisis memes have the potential to shape individuals' risk perceptions (Oh et al., 2021) but do not sufficiently lower political engagement barriers.

Previous studies on digital activism in movements, such as the Arab Spring and Black Lives Matter, have hyped up the mobilizational power of internet memes at the meso level (Moreno-Almeida, 2021; Williams, 2020). This study provides empirical evidence at the micro level—that is, in the context of memes' audiences (Huntington, 2020)—that the prosumption of memes does, indeed, precede political participation. However, by looking at the mediating role of the four-step model of mobilization (Klandermans & Oegema, 1987), we identified crucial factors that lead to participatory outcomes, confirming the significance of memes for micromobilization (Nekmat & Ismail, 2019). Using the example of memes related to the FFF movement and the climate crisis discourse, our study showed that memes have the potential to mobilize social media users by raising awareness of the political issues behind the memes. From a more structural perspective, memes offer an extraordinary opportunity for building up and strengthening recruitment networks, which is an important factor not only for meme diffusion but also for users' political participation.

This study has several limitations, mainly rooted in its methodological approach, which provides opportunities for future research. First, the sample size was rather small, based on self-selection, and followed a cross-sectional approach. Therefore, we could not derive representative or causal claims. In particular, small effect sizes (<.15) must be treated with caution because they do not achieve the appropriate statistical power (>.80). Future studies should aim for larger samples and longitudinal designs to transfer the findings to more robust path models. Second, the meme prosumption variable amalgamated individual consumption and production routines, which may confound the results. Nevertheless, we believe that in memetic communication, production, and consumption are deeply intertwined, which is reflected in Shifman's (2014) definition emphasizing that memes are constructed with "awareness of each other" (p. 41). Therefore, future studies should delve deeper into the process of meme production because very little is known about how users approach memetic

discourses and reconcile collectivity and individualism in their meme adaptations.

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Conflict of Interests

The authors declare no conflict of interests.

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