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Social media use for climate change campaign among Indonesian millennials

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ABSTRACT

Background: Climate change has threatened humanity and brought about serious impacts for at least two decades. The terrible threat can be addressed through social media. **Purpose:** This study examined how Indonesian millennials use social media to discuss and advocate for climate change. **Methods:** It employed mixed methods to combine climate change data from scholarly sources and strategic communication strategies in social media campaigns. **Results:** The results indicated a predominant presence of millennials, particularly in the 20-29 age group, using Instagram as the primary platform for climate change discussions. Social media highlighted limited engagement with experts and concerns about misinformation and emphasized the vital role of celebrities and influencers in climate change campaigns on social media. **Conclusion:** The research suggested that social media platforms like Instagram and WhatsApp facilitate climate change discussions among Indonesian millennials. They enable tailored communication strategies and emphasize the potential for social media campaigns to influence a certain behavior. This research also emphasizes the need for a combined approach involving online and offline channels, better climate change education, and collaboration. **Implications:** The findings underscore the necessity for Indonesia's climate change advocacy to integrate offline and online communication strategies that are tailored to individual preferences and enhance millennials' understanding through targeted education and social media campaigns. Public figures may also be involved for broader impacts.

Keywords: New media; climate change; communication; millennials; social media

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INTRODUCTION

The issue of climate change has become an increasingly alarming global environmental concern (Bosone & Nocca, 2022; Iancu et al., 2022; Ngepah & Conselho Mwiinga, 2022; Sa'adi et al., 2023; Simpson et al., 2023; Sun et al., 2022). Despite being responsible for a relatively modest 1.3% of worldwide carbon emissions, Indonesia faces substantial vulnerabilities to climate change repercussions, including the escalation of sea levels, inundations, droughts, and severe climatic events (Prastiyo et al., 2020). Consequently, the active engagement of the Indonesian populace in addressing climate change concerns occupies a pivotal role in mitigating and responding to these environmental difficulties.

Climate change poses a substantial threat to the global population, afflicting numerous individuals throughout the past twenty years (Calderwood, 2019; Fawzy et al., 2020; Janssens et al., 2020; Ma & Kirilenko, 2019; Nocca, 2017; Ojala & Bengtsson, 2019; Pendergrass et al., 2019; Sisco et al., 2021; Thomas et al., 2019). Its ramifications have also reverberated throughout ecosystems and are foreseen to exacerbate in the forthcoming periods (Malhi et al., 2020; Sintayehu, 2018; Turner et al., 2020; Weiskopf et al., 2020). The former United States President, Barack Obama, articulated that climate change has transcended the realm of future speculation and is unfolding (Benegal, 2018; Calderwood, 2019; Kverndokk, 2020; Telford, 2020). The 2007 assessment by the Intergovernmental Panel on Climate Change (IPCC) emphasized the increased vulnerability of the Asian and African continents to the fluctuations and variations brought about by climate change (Arias et al., 2019). This susceptibility is primarily attributed to their substantial reliance on economic sectors exceptionally sensitive to environmental degradation and climate change, engendering a profound and adverse impact on agriculture, health, and other pivotal economic domains (Agovino et al., 2019; Bruce M et al., 2018; Clapp et al., 2018; Kompas et al., 2018; Swinburn et al., 2019).

Digital age has changed the way in which information is shared and mobilized for social movements, especially among young people. Indonesian millennials, who constitute an important portion of the population, have increasingly shifted into social media as their primary source of information and platform for activism (Chon & Park, 2020; Darwin & Haryanto, 2021; Etter & Albu, 2021; Murthy, 2018; Nurlinah et al., 2021). This different demographic's involvement of social media prompts the question on how they view, communicate, and respond to the urgent issue of climate change in the unique socio-cultural

context of Indonesia.

Social media platforms like Instagram, Twitter, and Facebook have become crucial in moulding and shaping public discourse on global issues, including climate change (Markowitz et al., 2018; Pearce et al., 2019; Wei et al., 2021). These platforms offer an unprecedented chance to increase consciousness, facilitate dialogues, and mobilize collective action. However, they also pose challenges, such as misinformation, polarized reverberation chambers and risks of slacktivism, where online endorsements may fail to be translated into concrete actions (Basch et al., 2022; Chon & Park, 2020; Kidd & McIntosh, 2016).

In Indonesia, exploring the intersection of social media use and climate change activism among millennials is interesting. While this demographic is characterized by digital fluency, cultural diversity and increasing consciousness of global issues, their social media involvement patterns in environmental advocacy remain under-researched (Luqman, 2021; Ross et al., 2019). Much of the previous research focuses on broader global trends or specific case studies in Western contexts, leaving a gap in capturing the nuances of Indonesian millennials' involvement in climate change on social media (Huang & Li, 2023; Iancu et al., 2022; Park, 2020).

Moreover, the role of social media in environmental education and sustainable behaviour promotion among Indonesian millennials is an area ripe for exploration (Luqman, 2021; Mkono, 2019; Mustafa et al., 2022). The potential of these platforms to inform, persuade, and mobilize young adults towards environmental stewardship, particularly in a country as diverse and environmentally significant as Indonesia, is substantial but not yet fully realised (Dash et al., 2021; Hidayat et al., 2021; Schwabel, 2012; Wang & Lee, 2021).

This research addresses the gap by comprehensively analyzing how Indonesian millennials use social media for climate change advocacy. It aims to uncover the motivations behind their platform choices, the nature and effectiveness of their online interactions, and the impact of these engagements on their understanding and actions regarding climate change. Additionally, this study will explore the challenges Indonesian millennials face in utilising social media for environmental advocacy, including the influence of cultural factors and the digital divide on their engagement patterns (Mora, 2023; Saraswati, 2018; Yanbo et al., 2023).

Indonesian millennials' use of social media for climate change advocacy presents a unique case study in the global discourse on environmental activism. Their actions and narratives can provide valuable insights into how social media can be harnessed for effective

ecological communication and action in diverse cultural contexts. By examining the specific ways in which this demographic engages with social media for climate change discussions and campaigns, this study aims to contribute to a deeper understanding of the digital dimensions of environmental activism in the Global South, particularly in countries like Indonesia, where the impacts of climate change are increasingly felt (Ghahramani et al., 2020; Iancu et al., 2022; Irwin, 2021; Mooseder et al., 2023; Pearce et al., 2020; Pendergrass et al., 2019; Thomas et al., 2019).

In conclusion, this research is about analyzing social media usage among Indonesian millennials and understanding the broader implications of this engagement for climate change advocacy in Indonesia and beyond. It endeavours to provide insights into how digital platforms can be leveraged for environmental activism in a way that resonates with young, digitally savvy populations and to offer recommendations for stakeholders looking to engage this demographic in meaningful climate action and dialogue (Bayes et al., 2023; Fownes et al., 2018; Pearce et al., 2019; .Treen et al., 2020). The findings of this study are expected to contribute to the growing body of literature on digital activism and environmental communication.

However, up until now, a significant proportion of the Indonesian population lacks a thorough understanding of the importance of climate change issues. It is not sufficiently motivated to actively participate in efforts to mitigate and adapt to climate change. This deficiency can be attributed to the inefficacious utilization of language and communication methodologies for disseminating information regarding climate change and the requisite strategies for its amelioration.

Language and communication are pivotal in molding public cognitions and reactions toward climate change concerns (Saab, 2023; Sisco et al., 2021; K. Treen et al., 2022; Trolliet et al., 2019). Using appropriate and effective language can help clarify messages and improve understanding of climate change (Al-Shboul, 2023; Audley & D'Souza, 2022; Ma & Kirilenko, 2019; Saab, 2023; Walter et al., 2019; Zhang et al., 2023). However, inappropriate or less effective language can lead to misunderstanding and make the situation worse. Furthermore, how the media, governments, environmental organizations, and other stakeholders communicate can also influence public perception and reaction towards climate change matters (Cremades et al., 2021; De Stefani & De Marco, 2019; Koltsova & Kartashkova, 2022).

Numerous scholars have deliberated upon the far-reaching repercussions of climate change,

affecting a substantial populace, including millennials. Fernández-Vázquez and Sancho-Rodríguez examined a multimodal analysis of the corporate sustainability webpages of 35 significant Spanish IBEX firms (Fernández-Vázquez & Sancho-Rodríguez, 2020). This research focuses on scrutinizing how major Spanish companies address climate change concerns as they shape their reputational identity. Furthermore, the study conducted by Kaushal et al. focused on climate change communication, specifically investigating the effectiveness of various communication tactics in generating the intended and influential reactions among the general population (Kaushal et al., 2022). The study also investigated identifying and potentially reducing barriers that hinder public involvement in climate communication endeavors.

Ma & Kirilenko (2019) conducted a comprehensive survey of English-language newspaper stories from around the world over three decades. Their study focused on the nexus between climate change and tourism as portrayed in mass media framing. Their investigation encompasses a comprehensive examination utilizing Big Data techniques to assess content, geographical distributions, and temporal shifts in newspaper coverage concerning climate change and its implications for tourism. Similarly, Dayrell's study (2019) delved into climate change discourse within the Brazilian mass media, specifically focusing on the timeframe between 2003 and 2013. The research sought to elucidate how the media played a pivotal role in elevating awareness of climate change within Brazilian society, particularly emphasizing the evolution of this discourse over time.

However, despite the growing presence of climate change campaigns online, to date, the role of Indonesian millennials in these campaigns has been minimized. As stated by several authors climate change activists from developing countries such as Africa and Asia have been active in activism movements for several years but have not received attention from the media or writers (Bekers et al., 2022). This raises questions about the marginalization of millennials in Asia (particularly Indonesia) in climate change campaigns.

Poberezhskaya's research about Russian blogging provides a foundational understanding on how the digital platform functions as the arena for multifaceted discourses on climate change, exposing an "echo chamber" in which climate activists and sceptics amplify their beliefs (Poberezhskaya, 2018). This underlines the double character of social media - as a tool for spreading consciousness and as a potential source of misinformation. Thomas et al.'s research highlights how social, economic

and political factors contribute to people's vulnerabilities to climate change (Thomas et al., 2019), indicating that social media platforms must consider these multiple dimensions to reach various audiences effectively.

A critical review by Jorgenson, Stephens, and White on environmental education shifts emphasises the gap in tackling multi-stakeholder networks and collective actions in climate change educations (Jorgenson et al., 2019). These disparities point to the potential of social media in fostering collective environmental actions across millennials, often at the cutting edges for digital initiatives. The research by Markowitz et al. about immersive Virtual Reality (VR) for climate change education (Markowitz et al., 2018), has further broadened the range of digital tools in environmental education, demonstrating the similarities to the immersive and interactive properties of social media platforms.

Despite an extensive exploration of communication on climate change in various global contexts, there remains an essential lack of understanding of how Indonesian millennials explicitly utilise social media. These demographic groups represent a distinctive part of the global debate on climate change, with different patterns of cultural, social and technological involvement. The existing literature has largely focused on other broader demographic groups or national contexts, thus leaving a void in capturing the specific ways that Indonesian millennials use social media in climate change activism.

The primary objective of this research is to investigate how Indonesian millennials utilise and leverage various social media platforms to advocate and discuss climate change. In particular, this study aims to identify the most frequently used social media channels for this demographic to have environmental discussions, understand their motivation in selecting these platforms, as well as analyze their nature of interactions and discussions on climate change related issues. Additionally, this research aims to explore the efficacy of social media as a tool for climate change campaigns among millennials, as well as assess the impacts of such digital platforms on their climate change awareness, attitudes and behaviours. The study also intends to examine the barriers and challenges of Indonesian millennials in using social media for climate change communication, including the issues related to misinformation and their connection with climate change experts and credible sources of information. This research is expected to provide meaningful contributions to the role of social media in climate change advocacy and education among key demographics in Indonesia.

Moreover, the existing body of literature

concerning the utilization of social media by Indonesian millennials for climate change communication is notably scant. Consequently, this study is designed to bridge this lacuna in scholarly research, focusing on scrutinizing Indonesian millennials' behavior regarding their use of social media platforms for engaging in climate change discussions and advocacy within the domestic context of Indonesia and on a global scale.

RESEARCH METHOD

This research employs an exploratory sequential mixed method to offer a comprehensive insight into the involvement of social media in climate change dialogues within the Indonesian millennial demographic. It integrates quantitative and qualitative data within a unified and systematic investigative framework. It is employed when a single method cannot adequately address the research query, and the amalgamation of qualitative and quantitative data enhances the capacity to address the research issue effectively. Within this study, qualitative interviews were conducted to enrich the comprehension of the outcomes from the online questionnaire.

In this investigation, a combination of two sampling methodologies was employed to collect data via an online questionnaire. Initially, purposive sampling was utilized to identify and segregate an initial pool of respondents representative of the research population, specifically, Indonesian millennials aged between 15 and 35 years, currently engaged in secondary and tertiary education. Subsequently, these initial respondents (35 individuals) were requested to endorse and suggest the research to other prospective participants. The snowball technique was also deployed, where the chosen respondents shared the questionnaire within their social circles and peer networks via various social media platforms. The outcome of this data collection yielded responses from 85 participants who completed the questionnaire. Among these, a random selection of 35 respondents was made for participation in semi-structured qualitative interviews. The age range of the participants, falling within the 15-35 years bracket, was determined in alignment with the delineation of millennials (Madara et al., 2018).

Indonesia was selected as the focal point of this case study for several strategic reasons. Firstly, the nation boasts a wide spectrum of climatic zones, ranging from tropical regions to cooler highland areas. Indonesia's ecological and cultural diversity makes it very vulnerable to the dangers of climate change. It provides a valuable context for studying the effects of climate change on the daily lives of its residents. Secondly, Indonesia is home to a substantial millennial demographic, actively

engaged in many social activities, notably using social media platforms. Therefore, a comprehensive analysis of Indonesia can provide useful perspectives on the complex relationship between climate change and social media usage, as well as the impact of these dynamics on millennials' environmental attitudes and behaviors. Thirdly, Indonesia has a complex history of social conflict, including inter-religious strife, inter-ethnic tensions, and disputes between communities and the government. Within the context of climate change and social media utilization, an Indonesian case study offers a unique vantage point to explore how environmental issues may serve as catalysts for social discord and how social media platforms can shape individuals' perceptions and responses to such issues. Lastly, Indonesia ranks highly susceptible to natural disasters, including earthquakes, tsunamis, floods, and landslides. In the context of climate change, an analysis of Indonesia offers an opportunity to comprehend the impact of climate change on the occurrence and intensity of natural calamities, as well as the influence exerted by social media in molding public reactions to these emergencies.

The information collected through the online survey was automatically assessed using the Surveyhero platform. However, incorporating the data into Microsoft Word posed challenges due to the presence of graphs that could only be exported as images. To address this issue, the researcher opted to utilize Microsoft Excel to present, interpret, and analyze the quantitative data, as well as generate graphical representations. As for the qualitative interviews, the data was meticulously documented through audio recordings and organized notes. Subsequently, Excel was employed as the platform for presenting and interpreting this qualitative information. Furthermore, during the analysis of quantitative and qualitative data, analytical methods such as thematic analysis were applied to delineate subthemes, an essential step in the process of analyzing the results and subsequent discussions.

RESULTS AND DISCUSSION

This research focuses on using social media to promote climate change awareness and action in Indonesia, with a specific focus on the millennial demographic. The respondents' demographic data reveals a relatively balanced distribution, with the predominant segment falling within the 20-29 age bracket, comprising 60% of the total sample. The 30-35 age group constitutes the second-largest segment at 32%. Meanwhile, the 15-19 age group represents 8% of the sample. This age distribution holds particular significance for their pivotal role in

climate change campaigns conducted via social media platforms.

The quantitative data reveals that among the 85 respondents who participated in the survey, 53 (62%) were female, while 32 (38%) were male. Although this study does not specifically investigate the factors contributing to the higher representation of female respondents (particularly in an online survey context), it is noteworthy and warrants attention. This observation is significant because, in Indonesia and many other regions globally, women frequently encounter challenges in accessing information and communication technology (ICT) resources and services.

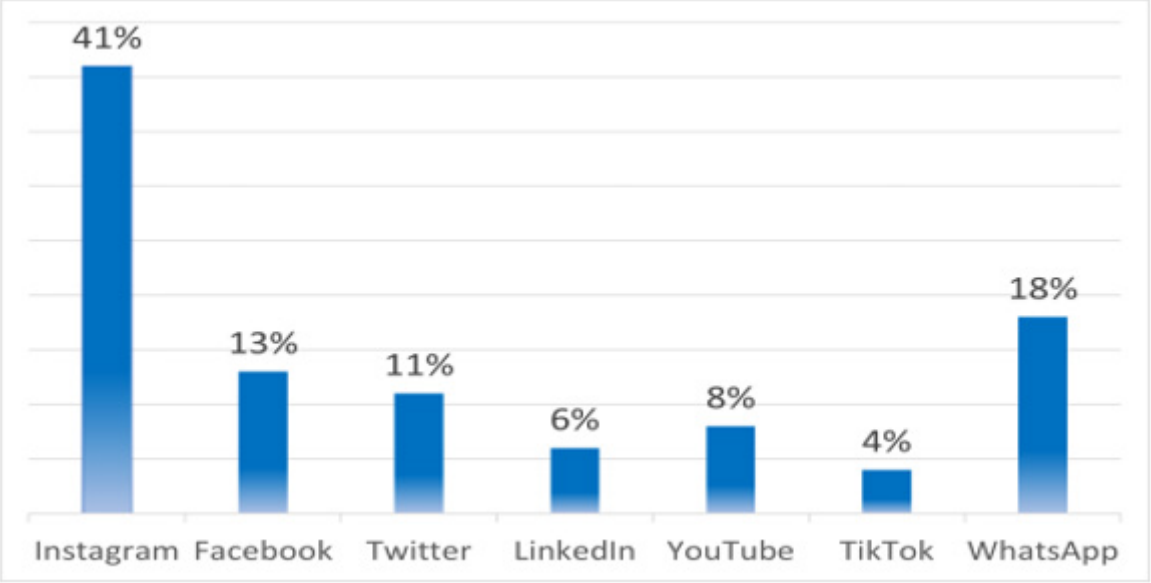
Data demonstrates that respondents' education levels vary greatly. University graduates may comprehend climate change concerns at 55%. 25% of respondents had secondary education, and 14% had postgraduate degrees, showing a large proportion seeking additional education. Approximately 6% of respondents had an "other" education level, which might include any degree of schooling outside the three primary categories. Analysis will determine how these respondents' education levels affect the way they use social media for climate change campaigns and how their understanding of the issue affects their digital campaign participation.

With 41% use, Instagram is the most popular site for climate change discussions. WhatsApp (18%) and Facebook (13%) follow. Twitter and YouTube also contribute to climate change conversations with 11% and 8% use percentages. Although less popular, LinkedIn and TikTok are also important at 6% and 4%, respectively. Thus, this research will examine Indonesian climate change campaigns' methods, message, and effects across multiple media. It examines how millennials' usage of social media platforms affects climate change knowledge and pro-environmental activities. Figure 1 shows that most quantitative data respondents debate climate change on Instagram.

The quantitative data in Figure 2 below indicates the reasons behind Instagram uses by most respondents in climate change discussions.

The research showed many motivations for adopting Instagram for climate change initiatives. Instagram's popularity was a big factor for 40% of respondents, demonstrating its millennial appeal. Additionally, 31% of respondents said their Instagram usage was impacted by their friends, demonstrating a high social network effect in climate change conversations. A minority (11%) considered Instagram simpler to use than other sites, while 14% noted Instagram's climate change efforts. This campaign's "other" element of 3% shows Instagram users' different motives.

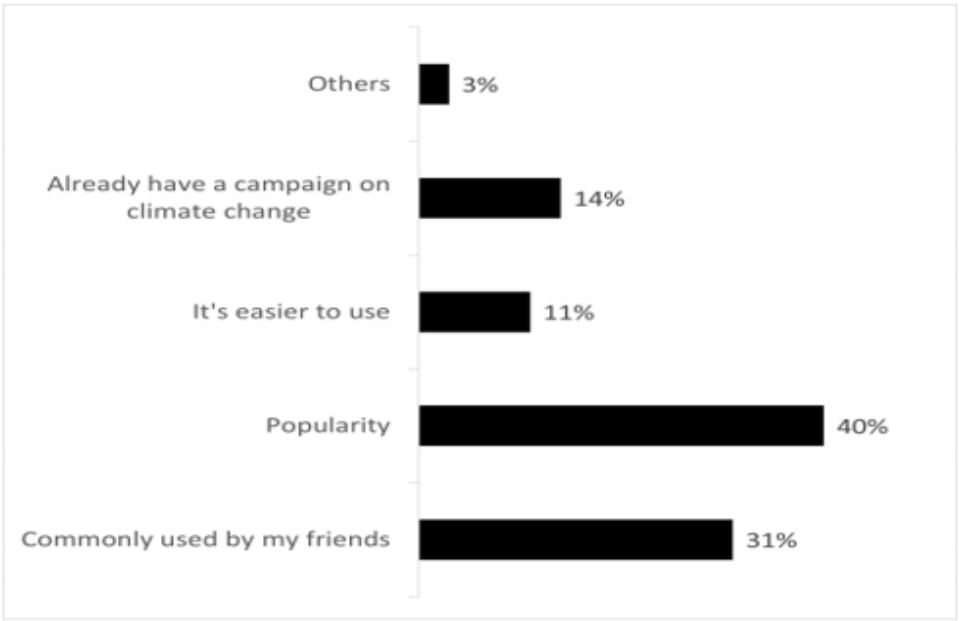
The quantitative data shows that



Source: Researchers' data, 2023

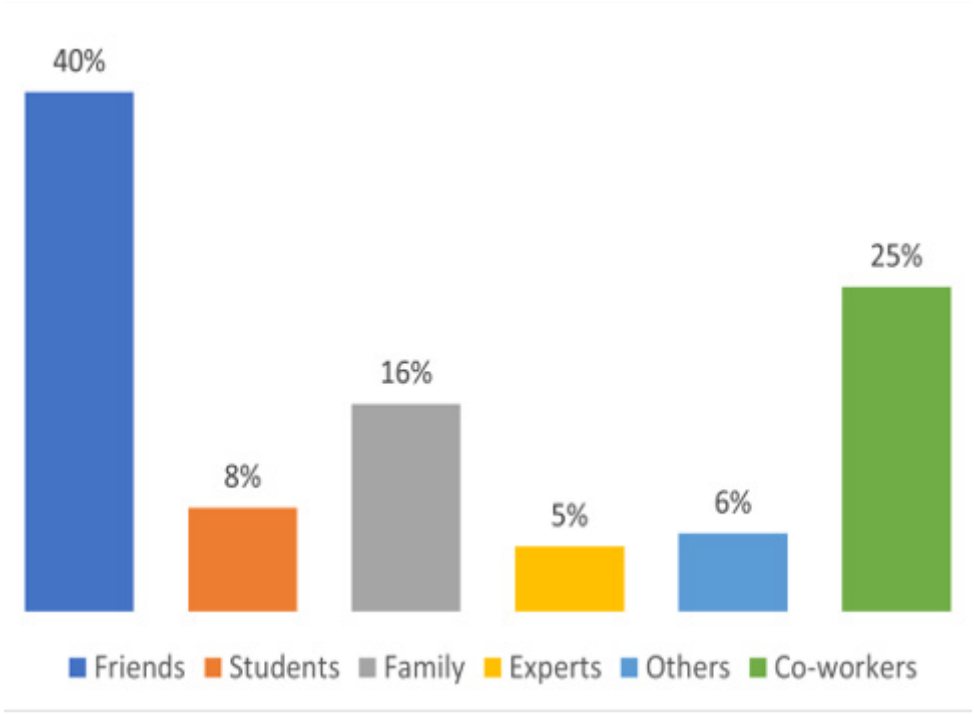
Figure 1 Social Media Platforms in Discussions on Climate Change Issues in Indonesia

respondents seldom incorporate climate change specialists, politicians, or the media in their social media climate change discussions. The poll found only five respondents spoke to climate change specialists. Under 'other', three respondents discussed with followers, one with media, and one with stakeholders. Figure 3 shows respondents' climate change discussions



Source: Researchers' data, 2023

Figure 2 Reasons for Using Instagram as a Platform for Climate Change Discussion in Indonesia



Source: Researchers' data, 2023

Figure 3 Engagement in Online Conversations about Climate Change in Indonesia

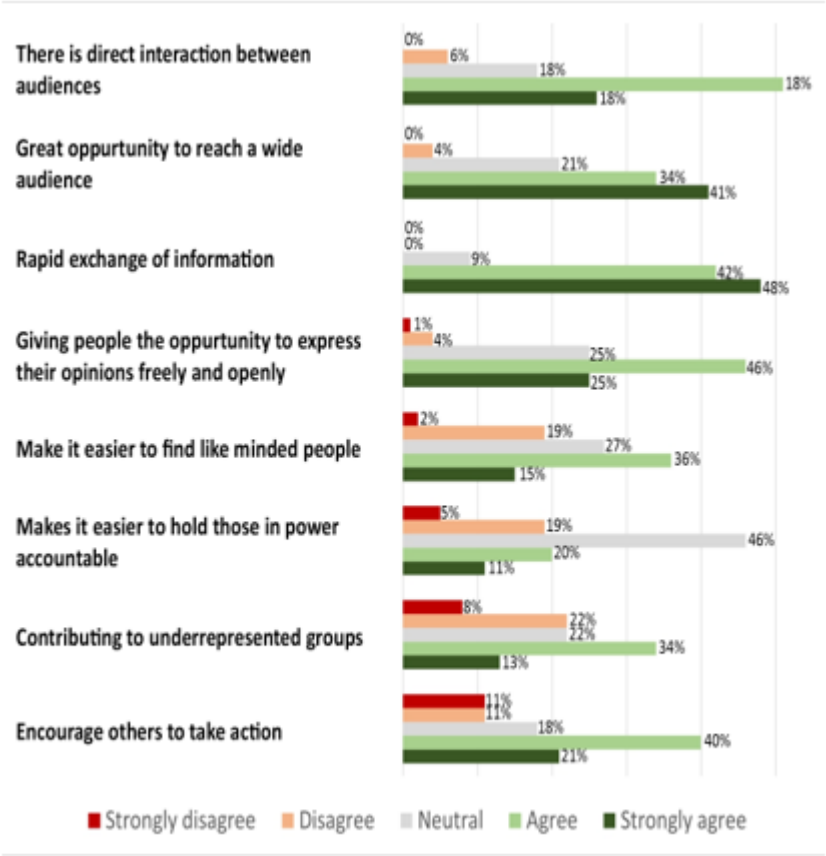
partners.

Figure 3 above shows that friends play a significant role in such engagement, with 40% of respondents indicating that their friends are the main source of online climate conversations. Colleagues also play an important role, accounting for 25% of respondents. In addition, the family has a considerable contribution, with 16% of respondents referring to their family as a source of online interaction on climate change issues. Students and experts accounted for 8% and 5%, respectively, in these online discussions. The "other" factor at 6% shows the variety of interaction sources not covered by the categories already mentioned.

Indonesian millennials' perspectives on social media's advantages for climate change advocacy are below. Most respondents agreed or strongly agreed that social media may help climate change campaigns. Over half of respondents (51%) believe social media provides direct audience involvement, fostering vital discourse and discussion. Most (41%) identified social media as a good way to reach a large audience and convey climate change information.

Social media allows speedy information interchange, which is important for climate change news, according to 48% of respondents. Additionally, 46% said that social media enables people to freely voice their thoughts.

In the context of opinion formation, 36%

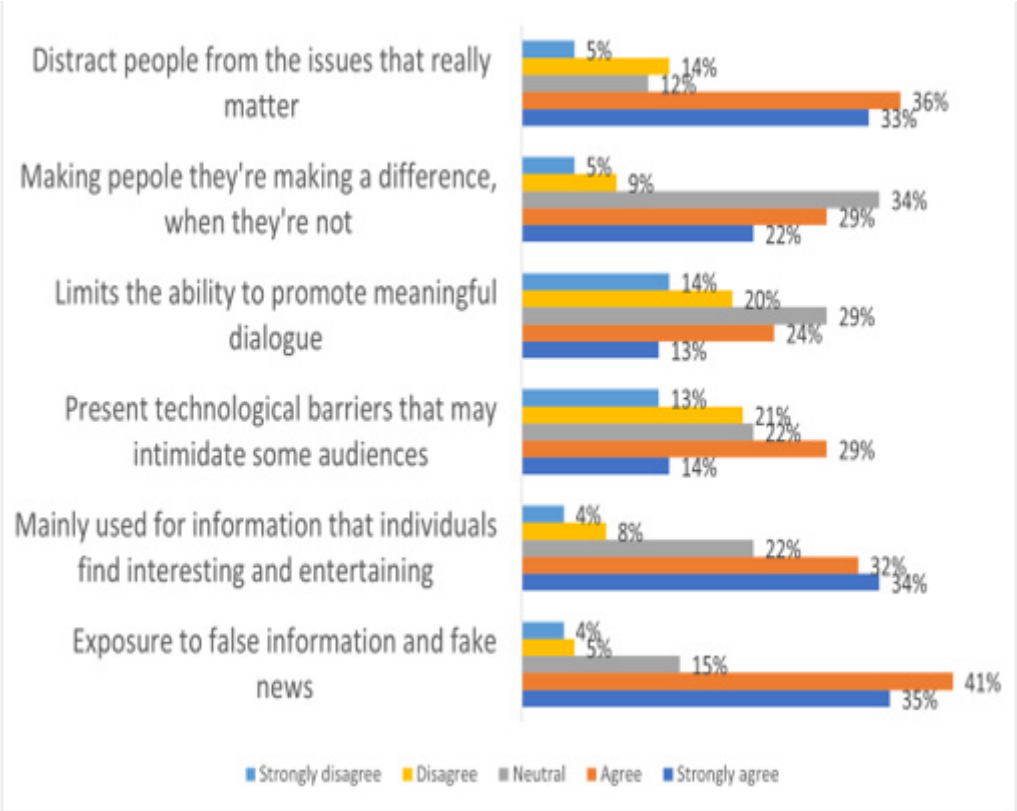


Source: Researchers' data, 2023

Figure 4 Benefits of social media for climate change discussion

of respondents stated that social media makes it easier to find like-minded people, enabling the formation of communities concerned with climate change issues. Furthermore, 40% of respondents felt that social media encouraged others to take action, which positively influences an active participation in climate change campaign. In several previous studies, the power of social media has been shown to drive and shape issues including climate change (Berglez & Al-Saqaf, 2021; Boulianne et al., 2020; Loureiro & Alló, 2020; Pearce et al., 2019; Samantray & Pin, 2019). Figure 4 illustrates the level of agreement or disagreement among respondents about the potential utilization of social media platforms for engaging in climate change talks.

Although social media is generally viewed as a constructive element in the climate change discourse within Indonesia, the findings also indicate that it can impede conversations on this issue. A noteworthy portion of respondents expressed apprehensions about the potential dissemination of misinformation and fake news on social media. Specifically, 35 percent strongly concurred with this concern, while



Source: Researchers' data, 2023

Figure 5 Social Media Constraints and Challenges for Climate Change Discussion

41 percent agreed. It highlights a considerable unease regarding the reliability of information conveyed through social media platforms.

Furthermore, 34 percent of respondents believed that social media primarily serves as a platform for sharing content that individuals perceive as engaging or enjoyable, while 22 percent remained neutral. This implies a potential risk of diverting attention from climate change issues towards lighter or entertaining content on social media. Furthermore, 29 percent of participants raised apprehensions about potential technological hurdles posed by social media that could deter certain audiences. In comparison, 13 percent believed it could limit the capacity to foster substantial discussions. Moreover, 22 percent believed that social media might lead people to believe they are effecting change when they may not be, suggesting the possibility of an exaggerated positive impact of social media on climate change campaigns. The data also showed that 33% of respondents felt that social media can distract people from issues that matter, while 36% agreed. This illustrates the importance of managing attention and focus in climate change campaigns on social media. Figure 5 below shows how respondents agree or disagree that social media can be a constraint

and challenge for discussing climate change issues in Indonesia.

The data shows that most respondents for the qualitative analysis are in the 20-29 age group, 60% of the total sample. Meanwhile, the 30-35 age group reaches 29%, and the 15-19 age group is 11%. The dominating age distribution in the 20-29 age group suggests that they are the main group involved in climate change campaigns through social media in Indonesia. This interests the researcher as this generation is often considered a strong agent of change in influencing awareness and action on environmental issues, including climate change.

In the qualitative research, 24 female and 11 male respondents were interviewed. These qualitative findings are also alluded to in the quantitative findings, as described in the previous section.

Similar to the quantitative findings, the qualitative respondent data also showed significant educational level variations. 49% of the total sample were undergraduates who may have a deeper understanding of climate change issues. 31% of respondents had pursued postgraduate education, indicating significant engagement from those with advanced educational backgrounds. Respondents with secondary education levels accounted for 14%, while "other" education levels accounted for 6%, which may include various education levels beyond the three main categories mentioned earlier. The finding that individuals with a university education outnumbered those with only a secondary education in the quantitative and qualitative results has several potential implications. It may suggest a heightened interest in climate change communication among individuals with higher education levels. Alternatively, it could be linked to the criticism often directed at the environmental movement, alleging its propensity to be elitist. This critique posits that supporters of the environmental movement often hail from privileged or higher socioeconomic backgrounds, including students and university graduates in Indonesia.

Respondents of the in-depth interview sessions expressed their preferences in using social media when discussing climate change issues, particularly Instagram. One respondent indicated that the reason for using Instagram is that her peers commonly use it, while she also frequently uses WhatsApp as another platform. The respondent stated that, in her opinion, it is better to use Instagram when discussing climate change because almost all of her friends, acquaintances, and colleagues also use the platform. Furthermore, he actively participates in other WhatsApp groups dedicated to the climate change discourse, focusing on the impact of natural catastrophes on Indonesia.

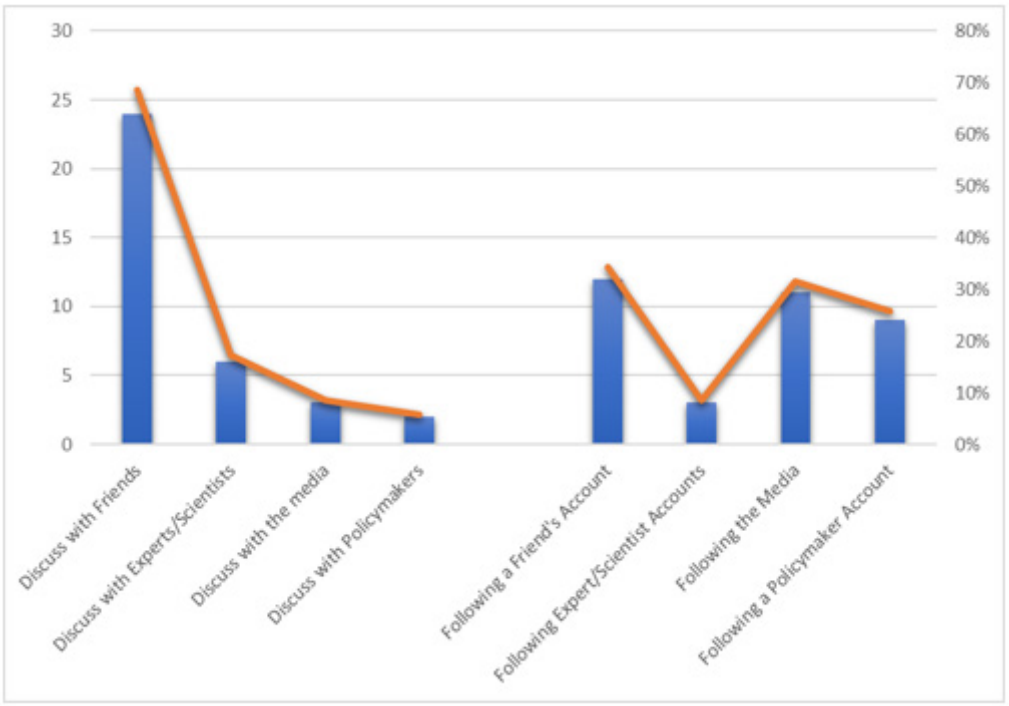
The qualitative information corroborates

the quantitative results mentioned earlier, illustrating that most participants do not actively engage experts, commentators, policymakers, or the media in their discussions about climate change on social media. Notably, only respondents affiliated with the National Research and Innovation Agency (BRIN) reported engaging with experts. Conversely, other respondents without access to these platforms rarely interact with experts; some even acknowledge their limited knowledge of climate change issues. For instance, one respondent admitted to occasionally discussing climate change on social media but felt inadequately informed to engage in in-depth conversations on the subject. Furthermore, this individual does not typically interact with experts or scientists on social media when discussing climate change issues (Figure 6).

Experts and scientists should take a more proactive role in fostering public engagement on the critical issue of climate change. According to Treen et al. (2020), as experts in their respective fields, the scientific community is responsible for increasing their discourse on climate change. However, the intricate terminology and subject matter often challenge effective communication with the general public, particularly younger generations. Consequently, the involvement of communication specialists, including journalists and policymakers, becomes pivotal in crafting accessible messages about climate change. Therefore, diverse stakeholders' strategic communication, public relations, and advocacy efforts make substantial contributions to the discourse surrounding climate change issues. Furthermore, these endeavors contribute to the formation of the public agenda and the construction of climate change discourse from their distinct viewpoints (Bayes et al., 2023; Canfield et al., 2021; Ojala & Bengtsson, 2019; Supran & Oreskes, 2020; Vulturius et al., 2020).

The participants expressed their perspectives on using social media for climate change discourse and advocacy. As highlighted by one respondent, social media offers a platform for swift and global communication. It facilitates the exchange of experiences and climate change-related knowledge among individuals worldwide. Nonetheless, social media presents challenges, including the rapid dissemination of misinformation and the prevalence of disinformation and misrepresentation issues, which largely stem from the limited expertise of those engaged in discussions.

A substantial proportion (47.5%) of respondents participating in the qualitative interviews expressed a preference for engaging in discussions related to climate change through traditional offline communication channels rather than relying on online platforms like social media. This inclination contrasts the



Source: Researchers' data, 2023

Figure 6 Engagement in Climate Change Discussion on Social Media

conventional notion of the public sphere, where social media is envisioned as a forum for expressing public opinions and mobilizing audience action. Additionally, it deviates from the perspective of Vraga & Tully (2021) which emphasizes social media as the primary platform for sharing political information. Nonetheless, it is worth noting that another participant mentioned that, while social media has the potential for such discussions, they found offline engagement in climate change advocacy to be more effective and involving.

This study found that respondents' knowledge of climate change campaigns in Indonesia correlated closely with the people involved in the campaigns. The qualitative interviews found that respondents were unable to name the campaigns and could only name celebrities, activists, or influencers involved in the campaigns, such as Rafaela Xaviera, Nicholas Saputra, Nadya Hutagalung, etc., who helped promote or facilitate the environmental and climate change campaigns. Furthermore, Park (2020)this study assesses the role of parasocial relationship (PSR posits that celebrities serve as conduits for introducing climate change to a broader audience and as entities that seek to enhance their public image by commercializing environmental issues. Additionally, one respondent indicated that the presence and endorsements of popular celebrities such as Nicholas Saputra, Hamish Daud, and Nadine

Chandrawinata influenced her engagement with climate change campaigns and participation in discussions. This respondent considers that through social media, celebrities can influence and motivate audiences to care more about environmental issues and climate change.

The research found that Indonesian millennials use social media, particularly Instagram, as the main platform to discuss climate change. This discovery aligns with Resende et al.'s contention that WhatsApp groups serve as a public forum for deliberating significant and strategic subjects, including matters of a political nature (Resende et al., 2018). Furthermore, the viewpoint by Ramos (2019)but the channels for free speech and communication vary across time and place. With reference to ongoing democratization processes, or to potential ruptures inside of authoritarian regimes, the role of mass communication, both by means of the conventional press and the internet, is an unavoidable topic of study. The chapter examines the specificities of the internet as a "public sphere" for processes of regime transition, notably its transnational character, its potential for informal communication, its interactive character, the networking capacity it creates, and its medium-term political socialization potential. It also covers new censorship strategies designed by states to limit the freedom of the internet. The role of the internet in fostering democratization in four African cases (Tunisia, Egypt, Angola, and Zimbabwe aligns with the notion that media communication systems and internet networks, including Web 2.0 social platforms like YouTube, MySpace, and Facebook, play a central role in shaping the global public sphere.

In contrast, the study of Walter et al. (2019) highlighted the utilization of Twitter as a means of communication among scientists in the context of climate change discourse. This study highlighted the effectiveness of Twitter hashtags in bringing together individuals with a common interest in this subject matter. Nevertheless, this study uncovers the restricted prevalence of Twitter in the discourse surrounding climate change on social media in the Indonesian context. With a mere 11% of participants confirming their utilization of Twitter, it is evident that Instagram continues to uphold its position as the prevailing platform for climate change debate in Indonesia, as affirmed by 41% of respondents.

Notably, initially overlooked in the survey, WhatsApp emerged as a significant social media platform frequently employed by respondents for climate change discussions in this study. This trend aligns with Resende et al.'s (2018) perspective, which situates WhatsApp groups as communal spaces for deliberations on pivotal and strategic subjects. Furthermore,

Milan and Barbosa (2020) have observed that WhatsApp and other comparable messaging applications or platforms enable intimate conversations within limited groups, which can be classified as 'public' according to Habermas' conceptualization of the notion of the public sphere.

The role of online media on climate change communication has been thoroughly investigated by some academics, such as Pearce et al. (2019), Berglez & Al-Saqaf (2021), Boulianne et al. (2020), Mooseder et al. (2023), Basch et al. (2022), Fownes et al. (2018), and Wei et al. (2021). Nevertheless, it is crucial to emphasize that the individuals involved in this research exhibited a distinct inclination towards offline communication channels instead of online platforms.

The findings of this investigation underscore the need to revitalize climate change information dissemination within the Indonesian context. The Climate and Vulnerability Commission in Sweden (Vulturius et al., 2020).

Green Public Relations (Green PR) is a communication strategy companies and organizations use to promote sustainable environmental efforts and build a positive image regarding ecological stewardship and social responsibility (Hartono et al., 2022). The goal is to influence public and stakeholder perceptions of the company's environmental practices, green products, and commitment to environmental issues (Hartono et al., 2022; Hidayat et al., 2023). In practice, Green PR can involve a variety of actions, such as announcing a company's efforts in carbon footprint reduction, use of environmentally friendly raw materials, participation in conservation projects, and various other initiatives that support sustainability. Green PR companies seek to build positive relationships with consumers, stakeholders, and the general public by emphasizing their commitment to environmental issues (Nakajima, 2001).

For example, McDonald's, one of the fast food companies, created a campaign related to the use of recycled materials to improve sustainability in its operations and reduce environmental impact (Nagarajan et al., 2019). In 2018, McDonald's Indonesia created a campaign with the hashtag #MulaiTanpaSedotan by no longer providing straws in all outlets. This campaign was shared through McDonald's Indonesia's official social media accounts and received positive responses and support. This communication strategy carried out by McDonald's Indonesia is a form of implementation of green public relations.

This study shows how Indonesian millennials debate climate change on social media. It shows that Instagram and WhatsApp facilitate environmental talks. It also shows how

Indonesia differs from other nations that utilize Twitter more in comparable circumstances. According to theory, social media platforms' climate change communication roles vary by country. The study also shows that social media works for climate change campaigns. Studies demonstrate that social media initiatives may modify behavior and boost climate change awareness. This shows that social media is an effective climate change campaign tool and that the public can readily absorb campaign messaging.

This research has major consequences for Indonesian climate change activism. The fact that most respondents prefer offline communication methods emphasizes the need to adapt to individual preferences. Indonesian climate change efforts should use social media and offline communication to reach diverse demographics. The lack of awareness and suitable climate change messaging for social media suggests that millennials need improved climate change education and training.

The findings of this study may motivate the government and environmental groups to improve climate change communication with Indonesian millennials. It might involve improving climate change training and education tools and supporting relevant and accessible campaigns on social media. Using famous personalities and celebrities to communicate climate change may also help reach more people.

CONCLUSION

This study brings light on the significant roles that social media platforms, notably Instagram and WhatsApp, play in stimulating conversation about climate change among young millennials in Indonesia. These platforms are far more prevalent than others, such as Twitter, which is reflective of Indonesia's distinctive social media environment. The strong participation of the group of individuals aged 20 to 29 in these debates proves the ability of these individuals to act as agents of change that advocate for environmental protection. The fact that the majority of respondents prefer offline communication channels, on the other hand, suggests that dual approaches are required. These approaches include mixing social media outreach with more conventional means to successfully involve diverse sectors of society.

Moreover, it demonstrates the difficulty of spreading disinformation and the limited participation of millennials to climate change specialists on social media. It has also emerged as a potential method for enhancing the outreach and effects of campaigns, and that technique is the engagement of prominent personalities in the communication of climate change. In

general, the insights helped to the development of climate change advocacy tactics in Indonesia that are more successful and inclusive. These strategies highlighted the significance of adjusting communications to the preferences of a diverse range of individuals and enhancing the awareness of climate change concerns among students in the millennial generation.

This research provides a number of important suggestions and activities that may be taken to improve climate change activism and conversation in Indonesia through social media platforms. In the first place, it is very necessary to put an emphasis on the complementary role that both online and offline channels play. The second point is that Instagram needs to be acknowledged as the key forum for holding debates about climate change in Indonesia, considering the extensive use of Instagram among the targeted population. Thirdly, the active participation of professionals in the media, as well as experts, scientists, and communication specialists, should be highlighted within the context of conversations and advocacy activities pertaining to climate change that take place on social media. The professional participation guarantees the efficiency of communication strategies and the alignment of strategic approaches with regard to this crucial matter. In the fourth place, campaigns targeting climate change should make use of the power of public personalities and social media influencers to magnify the effect of their efforts. Also, this study highlights the need of doing more research to dive deeper into the complexities of how Indonesian millennials use social media platforms for the purpose of engaging in debate around climate change. There is a significant need for more complete research to successfully influence future plans and activities.

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