

Exploring Media Academics' Perspectives on the Role of Social Media in Promoting Climate Change Awareness in Pakistani Society

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ABSTRACT

Aim of the Study: This study explores media academics' perspectives on the role of social media in promoting climate change awareness in Pakistan, a country that is vulnerable to environmental disasters such as floods, droughts, and heat waves.

Methodology: A qualitative methodology with purposive sampling was adopted for this study, using semi-structured questionnaires to collect data. The study adopted targeting individuals with educational and professional skills. A total of ten participants, having a background in Media, communication, or climate teaching, including media professors and scholars, were selected based on their relevance and field experience.

Findings: The findings suggest that Facebook, Instagram, and X (formerly Twitter) are social media platforms that effectively raise awareness and provide communication channels for the public, activists, and scientific communities.

Conclusion: Through platforms such as X (formerly Twitter), Facebook, and Instagram, local climatic issues - such as floods, heatwaves, fog, and water scarcity are expanded into global stories, making them more visible and relevant to Pakistani communities. These platforms not only promote public discourse but also produce bottom action by sharing real-time information and collecting public opinion for sustainable policy change.

Keywords: Climate Change, Public Awareness, Climate Policy, Social Media, Risk Perception, Pakistan, Climate Literacy.

1. INTRODUCTION

Climate change has various effects on a global scale, such as on the environment, the economy, and human health. Especially vulnerable to these effects, Pakistan faces severe challenges because of those increasingly unpredictable and intense weather patterns, which have dangerous implications for human health and national stability. Temperature rise accelerates glacier melting in the northern areas, while overly intensified monsoon rains have caused historic floods with disastrous consequences.

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UN Secretary-General Antonio Guterres titled these incidents as “epochal levels of rains and flooding,” highlighting Pakistan’s situation. Former Finance Minister of Pakistan, Mr. Miftah Ismail, claimed more than \$30 billion in economic losses, and 33 million people were displaced because of climate-related disasters (Iqbal, 2023). The Intergovernmental Panel on Climate Change (IPCC) emphasizes issues like food insecurity, land degradation, and displacement, hitting areas like South Asia, particularly Pakistan, one of the top ten nations of the world, which are most climate vulnerable (Eckstein et al., 2021; IPCC, 2022; Raza & Shah, 2024). The poor, women, children, and other vulnerable groups bear disproportionate risks (Ayeb-Karlsson et al., 2016). Although Pakistan accounts for less than 1% of global carbon emissions, it is still one of the world’s most climate-hit nations. Erratic weather conditions, increasing temperatures, and extreme events have severely affected agriculture, health, and economic stability. The 2022 floods displaced millions, damaged infrastructure, and inflicted huge economic losses (Akram et al., 2023b).

Past research warns that without adaptation; the occurrence and intensity of such events will increase. In the Himalayan, Karakoram, and Hindu Kush Mountain ranges, glacial melt threatens the Indus River Basin’s water security (Raza & Shah, 2024). Climate change is still poorly understood among the public in Pakistan. In the 2023 Annual Status of Education Report (ASER), more than 70% of the population is found to have no basic knowledge of climate, exposing most people to its impacts. ASER has campaigned for incorporating climate education to counter learning disruptions and foster resilience (ASER, 2023; Rashid & Shah, 2025; Riaz, 2018). Pakistan’s efforts, including the Ten Billion Tree Tsunami and the National Climate Change Policy, indicate a focus on environmental conservation, although serious international support is necessary for long-term advancement (Haq et al., 2024).

This study seeks to overcome these shortcomings by examining the first-hand personal experiences of those directly on the front lines of climate effects in Pakistan, with emphasis on local concerns, adaptation measures, the limitations, and the difficulties they face in trying to address climate change (Akram et al., 2023a; Ayeb-Karlsson et al., 2016).

1.1 Problem Statement

For a developing country like Pakistan, climate change is a rising threat that demands immediate public awareness and measures. Climate change problems are not yet widely known to the population, probably because of poor coverage through traditional media channels. Since social media has gained acceptance rapidly, online channels have become vital tools for information exchange on priority topics such as climate change.

1.2 Research Objectives

To examine media academics’ perspectives on social media’s effectiveness in raising climate change awareness within Pakistan.

To identify the opportunities and challenges of using social media as a platform for climate advocacy, as perceived by media academics.

To provide recommendations for leveraging social media as an effective tool for climate education and action within Pakistan.

1.3 Research Questions

How do media academics in Pakistan view social media’s role in influencing public understanding of climate change?

What opportunities and challenges do media academics perceive in using social media to promote climate awareness in Pakistan?

What strategies do media academics suggest for maximizing social media’s potential for climate literacy and climate-positive actions?

2. LITERATURE REVIEW

Pakistan is highly at risk from the various effects of climate change, facing unprecedented challenges such as severe heatwaves, droughts, and abnormal monsoon rains that have led to devastating floods even in tiny towns, where no prediction is available, and underground/ earth water levels are becoming very low in some areas and some are affected by floods (Akram et al., 2023a; N. Javed, 2021). These climatic events critically impact agriculture, the backbone of Pakistan's economy, resulting in significant economic losses and health risks due to stagnant, contaminated water. (Mukhtar, 2020) highlights that water security is emerging as a national security challenge for Pakistan, intensified by a growing population and increasing demands on water resources.

Recent studies emphasize the implications of glacier melting, inadequate dam infrastructure for rainwater storage, and the necessity for advanced agricultural water management techniques (Bashir & Gull, 2024). The socio-cultural aspects of Climate Information Services (CIS) are of most significance to assuring access and participation of urban citizens. City-level assessments of climate information programs acknowledge that the incorporation of environmental risk communication theories is important to facilitate social understanding (Raza et al., 2025; Savari et al., 2024). For example, studies show that some climate information can greatly enhance community involvement, as perceived from urban studies conducted in Japan (Barkemeyer et al., 2017; Mabon & Shih, 2021).

Traditionally, the popular perception of science has been based on the "information deficit" model, which views society as passive recipients of information (Ifthikhar & Shafiq, 2019; Safdar & Butt, 2024).

But newer methods encourage "upstream engagement," claiming the necessity of early public discussion of debate about complex scientific issues (Rogers-Hayden & Pidgeon, 2007). This view favors co-production of knowledge, wherein dialogue between experts, decision-makers, and the public must be engaged in successful risk communication (Intergovernmental Panel on Climate Change, 2015; Jasanoff, 2004).

It is essential to comprehend how society views and reacts to risks, particularly regarding CIS, which aims to assist communities in managing climate change risks (Visbeck & SKeiser, 2021). Societal constructs, including trust in information sources, representation in media, and cultural influences, identity, play a significant role in risk perception (Akram et al., 2024; Barkemeyer et al., 2017; Mabon & Shih, 2021). Therefore, socio-cultural contexts need to be addressed to adequately evaluate climate information. Risk governance requires an understanding that risks cannot be quantified easily, and therefore, collective decision-making is needed to deal with uncertainties around climate risks (Johannessen et al., 2024). Sarku et al. (2024) post that CIS development should go beyond research communication to identify user requirements, improve understanding of complex information, and create social relations. Climate information services for urban resilience development must prioritize vulnerable groups to incorporate socio-cultural factors into risk communications (Koulaxi & Daniel, 2023). Growing concern over the utilization of social media for climate messaging is significant (Darwishean et al., 2024).

Current studies by Bashir & Gull (2024) show that the use of social media to promote renewable energy can increase public awareness and participation. Use of social media as support for developing an interactive climate engagement tool comes from evidence that demonstrates innovative approaches are necessary to break the constraints posed by mainstream media (Waleed, 2024). Besides, the economic effects based on climate change are concerning, with GDP expected to drop significantly by 2050 if trends persist (Hussain, 2023).

Climate studies are important, as dominant narratives are more focused on describing short-term crises over enduring solutions (Asif et al., 2024). With ongoing studies on the effects of social media on climate communication, digital platform creation for awareness and engagement is necessary, especially for combating misinformation (Hingorjo et al., 2023). Social media and scholarly efforts towards climate change consciousness in Pakistan are gaining attention, still much to be accomplished in communication

and community work. Future research must prioritize ways to leverage the power of digital media for climate action, especially for marginalized communities suffering from the brutal realities of climate change.

The economic effects of climate change have also been examined. Hussain (2023) speculates that adverse climate fluctuations can reduce the GDP of Pakistan by 2050 a significant amount, citing the important role of the media in informing the public about these risks and promoting prevention. This pedagogical function is critical, particularly because the government is implementing strategies such as the Clean Green Pakistan Movement, designed to check environmental deterioration (Raza et al., 2025).

Furthermore, the intersection of media reporting of climate incidents and public opinion is an emerging area of research. Asif et al. (2024) analyze media coverage after major climate-related catastrophes in Pakistan and find that it is event-driven, focusing more on the quick impacts than on ultimate solutions. This aligns with Javed (2016) appeal for in-depth coverage that includes both causes and consequences of climate change. Despite increased interest in social media's role in climate communication, further studies are required to understand how social media can be maximized for awareness and engagement. Proper use of social media has been found recently to raise public consciousness regarding climate issues and mobilize grassroots-based initiatives (Muhammad et al., 2024). Still, there are issues, especially regarding misinformation and the necessity of authentic sources.

2.1 The Role of Social Media in Climate Change Awareness

Social media has become a powerful tool to spread information about climate change and get people involved in Pakistan. Afsheen & Naz (2024) point out that online platforms play a key role in educating people about climate issues, especially those who might not watch or read traditional news. Facebook, X (formerly Twitter), and Instagram give environmental groups, climate activists, and everyday folks a chance to run awareness campaigns, push for new laws, and share tips on how to fight climate change and adapt to its effects. Even though these platforms can reach a lot of people with information, there's still a big gap between knowing and doing. People might understand the problem, but do not always feel motivated to change their behavior (Afsheen & Naz, 2024).

Tackling this gap Hingorjo et al. (2023) point out that social media's interactive and participatory nature creates opportunities to back community-led environmental initiatives, such as local efforts like tree-planting drives and recycling programs. This means social media serves two purposes: it spreads information and sparks real, ground-level action (Afsheen & Naz, 2024; Tuitjer & Dirksmeier, 2021).

Ogunjinmi et al. (2016) also, mentions that while digital platforms overflow with climate-related talks, the power of such content hinges on its capacity to spark real action. Online groups focused on sustainability can create a shared feeling of duty, pushing people towards common eco-friendly aims (Afsheen & Naz, 2024; Jan et al., 2020). This kind of action-driven communication proves to be crucial for Pakistan, where farming and water sources face big risks from climate change (Afsheen & Naz, 2024; Jan et al., 2020).

2.2 Traditional Media's Influence on Climate Literacy in Pakistan

Along with online platforms, old-school media, TV, radio, and newspapers still have a big impact on how people understand climate issues. Afsheen & Naz (2024) and Jan et al. (2020) point out that these outlets play a key role in boosting climate knowledge among different social and economic groups, those who can't get online. The researchers push for regular climate-focused shows and teamwork with science experts. They suggest that watchdog groups like the Pakistan Electronic Media Regulatory Authority (PEMRA) should require TV and radio stations to set aside time for climate segments when most people are watching or listening. These steps would not only reach more people but also drive up demand for environmental policies that do something.

We've seen regulatory examples in this area before. PEMRA made TV channels show messages about saving water. This shows how the media can help people act more. But country-wide studies show a big problem: more than 70% of the population don't know the basics about environmental issues (ASER, 2023). This means we need to use media more and in better ways to teach people about climate change right away.

2.3 Integrating Media for Enhanced Climate Impact

To effectively respond to the country's climate crisis, scholars like Afsheen & Naz (2024) and Jan et al. (2020) propose a unified media strategy that combines the power of both traditional and digital platforms. The merger of policy development and daily stability methods can facilitate the holistic communication model. Such an approach not only increases awareness, but also empowers communities to transition to actively, climate-elastic behavior from passive information consumption. Eventually, this integrated media model can help close the Knowledge-Action Gap, enabling Pakistan to better cope with the socio-economic challenges raised by the rapidly changing environment.

2.4 Challenges and limitations

While social media presents a significant potential to raise awareness of climate change, many obstacles hinder its effectiveness. Significant concern lies in the spread of misinformation, which can distort public understanding and weaken the reliability of advocacy efforts. In addition, the risk of inequality and algorithm-based eco-chamber in digital literacy levels can further reduce the impact of climate change related information. Importantly, uneven access to digital techniques in socio-economic groups restricts the ability of climate messages to reach to marginalized communities (Abdulazeez et al., 2025).

2.5 Research Gap

Analysis of the current body of literature shows a crucial distance in understanding the different roles of social media in the context of Pakistan and in drawing public action. While the role of traditional media - especially the printing and broadcast formats has been given significant attention, when shaping the climate discourse, limited research finds how the digital platform contributes a unique connection to environmental issues (Syed et al., 2022). Although social media is increasingly recognized for its reach and interaction, the study is insufficient in investigating its specific methods in environmental communication.

Further evidence of this research is found at the center of topics of existing media stories. For example, Waleed (2024) argues that environmental issues are often subordinated to political and economic concerns and have limited contact with people with serious information related to climate change.

This shows the requirement of revived media coverage to promote more knowledgeable and climate-conscious people, capable of demanding intervention of meaningful policy intervention.

3. METHODOLOGY

This study employed a qualitative research design to gain in-depth insights into how media academics perceive the role of social media in fostering climate change awareness in Pakistan. Qualitative inquiry is particularly suitable for capturing the complexities and contextual nuances that arise in participants' interpretations, especially when utilizing semi-structured interviews (Lim, 2024).

3.1 Sampling

The study adopted a purposeful sample method, targeting individuals with educational and professional skills. A total of ten participants, having a background in Media, communication, or climate teaching, including media professors and scholars, were selected based on their relevance and field experience.

3.2 Data Collection and Research Process

Semi-structured interviews were conducted using the questionnaire to explore a series of subjects, including the role of social media, challenges, and potential strategies for improvement in climate communication. Each interview was conducted with the help of an audio recording and a verbatim transcript, ensuring the confidentiality of each participant.

3.3 Data Analysis

Data analysis was conducted by subject analysis, which includes stages such as transcript, systematic coding, theme development, and initial acquaintance with interpretation. Famous themes include the concept of “social media as a means of climate awareness” and “challenges raised by false information.”

3.4 Ethical Considerations

All participants provided informed consent before their involvement in the study. To support moral standards, the identity of the participants was kept secret, and all the data was safely stored and controlled according to the moral research protocol.

4. FINDINGS

Based on the interviews with ten intended experts in the media, communication, and climate teaching, many key themes have emerged that reflect the current dynamics of social media in awareness of climate change in Pakistan.

Theme 1: Social Media as a Critical Tool for Climate Awareness

Social media platforms such as X (formerly Twitter), Instagram, and Facebook have emerged as powerful tools for climate awareness in Pakistan, especially where traditional education and access methods are limited. These platforms provide real-time, accessible ways for information distribution, advocacy, and community engagement. They connect enemies, environmentalists, activists, commoners and facilitate collaboration and collective action on climate issues. Participants published how social media creates a multifaceted climate. That simplifies relevant content, such as infographics, videos, and community discussions, can make this topic more understandable and actionable for the public. Importantly, social media expands the voices of marginalized people and often brings attention to overlooked issues, such as floods and drought effects on rural communities. However, the current focus on event publicity and limited rural engagement hinders its possibility. Despite these shortcomings, social media is a crucial forum for climate education and public mobility.

Theme 2: Bridging Climate Communication Gaps

Social media plays a transformative role in eliminating the distance between the social workers, activists, policy makers, and people. Given the technical nature of climate change, this simplicity is necessary to make this issue accessible to a broader audience. In a context like Pakistan, where the climate literacy history is lacking, social media enables various stakeholders to join the dialogue. Environmental bodies and influencers use the platform to transmit research conclusions, raise immediate issues, and propose active solutions. This democratization strengthens the public understanding of climate challenges. Civic journalism, especially in local communities, enhances this connection by sharing the living experiences of climate effects. For example, a local report on floods or water shortages enhances these issues on national and international platforms.

Theme 3: Highlighting Local Climate Concerns

Social media is important for setting up global environmental concerns with the regional realities of Pakistan, localizing climate communication. The platform often highlights urban floods, fog, heatwaves, and lack of water, local problems in the global debate.

Grassroots knowledge plays a major role in the published stories of organizations and civic journalists. Real-time posts on urban floods in Karachi or air pollution in Lahore produce public discourses and raise awareness. Nevertheless, experts emphasized the importance of moving beyond event-based materials. To be more effective, climate communication should include long-term descriptions, solutions, and clear calls to action. The localized story that combines everyday experiences with climate action can promote more public engagement and responsibility.

Theme 4: Limitations of Social Media

Despite its promise, social media carries many limitations in effectively raising climate awareness in Pakistan. A major challenge is the digital divide, especially in rural areas, where internet access is limited or inaccessible. In addition, the prevalence of false information and climate rejection on social media distorts public understanding.

Participants also criticized the superficial use of the platforms by organizations, which were often limited to promotional content rather than meaningful engagement. The intense volume of online content means that climate issues often struggle to compete for attention.

Another concern is the lack of corresponding, high-quality materials that resonate with the Pakistani socio-cultural context. To overcome these limitations, experts suggested strategic interventions, such as improving rural internet access, promoting media literacy, and creating a partnership for reliable content proliferation.

Theme 5: Public Opinion and Policy Mobilization

Social media is re-shaping people's opinions and influencing climate policy discussions in Pakistan. By enabling direct interaction between citizens, activists, and policymakers, this platform produces policy dialogue and mobility of the community.

Renewable energy movements explain the power of collecting support for hashtag campaigns, applications, and digital activism, environmental reasons around water conservation, and urban pollution. Public lectures on platforms like X and Instagram have increased the visibility of issues such as air quality, water shortage, and urban floods.

However, participants have noted that such a pace should be sustained through tangible results and long-term strategies. Effective climate campaigns should combine compelling storytelling with calls for civic actions, such as voting for green policies or joining the local initiative, to maintain public connection and policy performance.

Theme 6: Underutilized Potential for Substantial Awareness

Despite increasing use, social media is less likely to raise significant climate awareness in Pakistan. Most content is event-centered or focuses on organizational propaganda, with limited focus on continuous educational connection.

Experts noticed the disconnect between local climate effects and widespread climate stories. A few campaigns provide interactive materials that sustain public interest over time. Moreover, the absence of storytelling in regional languages and cultures reduces the effectiveness of resonant messaging outreach.

To overcome this hindrance, the participants recommended migrating to continuous, community-based efforts from scattered campaigns that promote climate literacy. Telling stories with the help of local examples and promoting duplicate conversations can make social media more effective for awareness and action.

5. DISCUSSION

In both Pakistan and the global context, the climate change awareness campaigns have developed in the transformative revolution run by social media. As Pakistan faces intense climate effects, including floods,

drought, and extreme heatwaves, digital platforms have emerged as essential tools for public education, advocacy, and mobility. History has become important in a country with a harsh climate and low literacy levels, platform information, such as X (formerly Twitter), Facebook, and Instagram, promoting public dialogue and community-based solutions (Khan & Hanif, 2024; Saeed et al., 2023). The most significant contribution of social media is its ability to expand local climate concerns to global levels. Urban floods in Karachi, constant smog, and water scarcity in Lahore are gaining national and international visibility. Through the influence of civic journalism, bottom-up movements, and environmental communicators, stories of sensitive communities are more and more represented (Stolar, 2019). The real-time nature of social media increases the proximity of these descriptions, generates urgency, and expands public connection (Bashir & Gull, 2024). The democratic nature of social media enables concerned quarters to participate in meaningful discussions, including social activists, policymakers, and the public.

5.1 Challenges in Social Media-Based Climate Advocacy

Social media also presents many challenges for effective climate advocacy in Pakistan. Limited Internet access to rural regions restricts the participation of sensitive communities, which are often affected by climate change through the actions of others or by contributing to it (Cooper, 2023). This significantly compresses the reach and contents of the digital split platform. Another worrying concern is the enormous spread of misinformation. Vested interests and political agents have long opposed political or regulatory action in response to climate change by appealing to scientific uncertainty (Lewandowsky et al., 2015). Without strong methods to cope with false information, social media can inadvertently propagate confusion rather than clarity. In addition, the superficial use of social media by many organizations and influencers focuses mainly on event publicity or executive branding. Considering the importance of utilizing social media as a means of continuous education and engagement, climate content is often covered by viral, entertainment-based materials due to the high volume and competitive nature of the online platforms (Bashir & Gull, 2024)

5.2 Strategic Interventions for Effective Use

To overcome these limitations, targeted and strategic interventions are essential. Extension of rural Internet access services and promoting digital literacy can help to integrate a marginal population into climate conversation. Moreover, the campaign should focus on producing high-quality, locally related materials that resonate with the various socio-cultural landscapes of Pakistan. Regional languages, involving personal storytelling and actionable information, can significantly increase engagement and impact (Hussain et al., 2024). Collaboration between environmental organizations and social media platforms is crucial for facing false information and spreading accurate knowledge. This partnership can ensure the delivery of trusted, effective climate stories. In conclusion, despite the challenges, social media is an indispensable tool for climate advocacy in Pakistan. It strengthens efforts to voice their concerns, promote collective responsibility, and increase public awareness of climate change.

6. CONCLUSION

Social media has emerged as a powerful tool for the communication of climate change in a sensitive country like Pakistan. It serves as an important communication bridge, connecting the competitor scientists, environmental activists, policy makers, and the public. Through platforms such as X (formerly Twitter), Facebook, and Instagram, local climatic issues - such as floods, heatwaves, fog, and water scarcity are expanded into global stories, making them more visible and relevant to Pakistani communities. These platforms not only promote public discourse but also produce bottom action by sharing real-time information and collecting public opinion for sustainable policy change. However, the effectiveness of social media is blocked by significant challenges. Digital split prevents many sensitive and rural communities from participating in climate conversations. Besides, the superficial use of social media for false information and promotions reduces its reliability and long-term impact, rather than education. However, when used strategically, social media can help democracy, promote advocacy, and increase community elasticity. Climate action requires intentional and persistent efforts to maximize the

use of social media. This includes increasing internet access in rural areas, promoting digital literacy, and creating a partnership to fight false information. Moreover, by moving from episodic publicity to durable publicity, the public understanding of the educational campaign will intensify and increase climate literacy. By benefiting from its wide range and incorporation, social media can develop from a means of awareness to the catalyst for meaningful action, helping Pakistan explore and build more climate-resilient strategies.

6.1 Implications of the Study

1. Enhanced Role in Climate Advocacy

Social media platforms are increasingly crucial in raising awareness and collecting public attention on climate issues in Pakistan. When managed effectively, they can enhance local and global communication and encourage civil participation.

2. Strategic Content Development

The development of reference-specific, high-quality materials using regional languages, storytelling techniques, and functional messaging can significantly improve the understanding and involvement of the audience.

3. Bridging the Digital Divide

For the inclusion of marginalized and rural populations, it is necessary to expand the Internet infrastructure and promote digital literacy. Policymakers and NGOs must collaborate to ensure equal access to digital platforms.

4. Combating Misinformation

Creating an alliance between environmental organizations and social media platforms can help fight false information. The media literacy initiative is crucial to help evaluate the content available for the masses.

5. Depth over Publicity

Social media should not advance superficial engagement; rather, focus on constant educational campaigns. Prioritizing the depth of glory will promote long-term climate awareness and informed dialogue.

6. Public Mobilization for Policy Reform

The integrated social media campaign can apply pressure on policymakers to apply climate-friendly policies. Grassroots movements can use this platform to gain visibility and influence national debate.

7. Inclusive Climate Communication

By expanding the understanding of voices, social media can promote a climate strategy that reflects various experiences of Pakistan's communities, especially those affected by climate change.

8. Integration with Traditional Media

The combination of social and traditional media, especially for an audience with limited digital access, will create a more comprehensive approach to climate communication.

9. Incentivizing Climate-Focused Content

The visibility of climate issues can be expanded by encouraging influencers and content makers to prefer environmental themes. Knowing and being beneficial to effective advocacy can strengthen continuous engagement.

10. Long-Term Public Engagement

Climate communication should be compatible and targeted. It is necessary to present clear steps and tangible results to ensure constant partnerships between people and policymakers.

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