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The Intersection of Digital Media and Climate Change in Pakistan: Assessing Awareness and Charting a Path Forward

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Abstract

This research article explores the relationship between digital media and climate change in Pakistan. It highlights the importance of understanding the efficacy of digital media to upsurge awareness about climate change and to drive action toward mitigating its effects. The article examines the current level of knowledge and understanding among the digital media user population regarding climate change in Pakistan and the action they use to take in this regard. The comparison of awareness and action has been conducted to identify if there is any awareness-action gap related to climate change in Pakistan. The study employs a mixed methodology approach. A survey is conducted among five hundred digital media users in Pakistan. The survey questionnaire is based on the Social Media Usage Scale and Climate Change Awareness and Action Scales. Furthermore, in-depth interviews of environmentalists and digital media content creators are conducted to develop strategies that can help in the constructive usage of digital media to augment awareness and engage the young generation in eco-friendly practices. The research provide evidences about positive relation between climate change awareness and action but also identified the critical issue of misinformation spread through internet and suggests making strategies to deal with it. The article provides recommendations and strategies for how digital media can be leveraged to tackle climate change in Pakistan, creating a roadmap for future action.

Keywords: *Climate Change, Environment, Digital Media, Climate Awareness, Public Participation and Engagement, Climate Action*

Introduction

Climate change is a scientifically proven reality that has evolved as one of the precarious challenges faced by the modern-day world. This global phenomenon is affecting every aspect of life on Earth (Dhaher & Gümü, 2022). The term refers to the continual increase in the average temperature of the planet's surface, which is caused by the emission of greenhouse gases into the atmosphere. The consequences of climate change are very devastating. On one hand, natural disasters are getting more intense and frequent due to raised sea levels caused by the melting of the glaciers. On the other hand, the weather patterns are altering, affecting the agriculture sector's growth and activities (Smith, et al, 2019). The population on Earth is experiencing the distressing outcomes of these climate change. Coastal flooding, erosion, storms, droughts, and heat waves are critically affecting the environment and human life in terms of community displacement, infrastructure damage, and mutilation of the ecosystem balance in many places (Tyagi, 2021). The world population is widely at risk of shortage of food and waste in coming years, while some parts are already suffering from these

calamities. Along with food and water scarcity issues, climate change is affecting public health, especially in developing countries with inadequate healthcare systems and facilities. Biodiversity is declining, and numerous valuable habitats and species are at risk of obliteration which eventually can affect the food web human beings need to survive (Breslyn & Mc Ginnis, 2019).

The high magnitude and severity of this issue demand a painstaking and cohesive approach to deal with this intense global challenge. While many initiatives to combat climate change require high-level policymaking and strategies, the role of citizens and their actions at individual and community levels can also play an important part in the efforts to deal with climate change (Walter et al., 2018). Climate change is not only affecting the present-day world, but the upcoming generations will also inherit the destructive consequences of this phenomenon if it is not addressed adequately today (Fletcher et al., 2020). Therefore, experts commonly believe that high-level policies and strategies can help when positive attitudes and eco-friendly behaviour of individuals and communities support them (UNDP, 2022).

Pakistan is among the countries highly vulnerable to the climate change consequences. The devastating impact of climate change on the country is already visible in the form of floods, land erosion, intense heat waves, and a decline in agriculture production. The alteration in the precipitation patterns is causing water shortage for drinking and irrigation purposes (Ishaque, Rida & Mudassir, 2022). Consequently, the land is yielding fewer crops, and food scarcity is evolving as a major challenge in many areas of the country (Nadeem & Nawaz, 2022).

The severity of this issue calls for adopting a comprehensive approach that not only incorporates policymaking but also suggests the path for community participation (Björnberg, et al 2017). Pakistan is struggling with varieties of problems, including weak infrastructure, lack of financial resources, underutilization of natural resources, and corruption. In this complex and problematic situation, climate change aftermaths are adding to the miseries of people in a very harsh manner. Therefore, it is critically important to take the community on board and provide them with enough awareness and a roadmap so that they can play their part in battling the pressing issue of climate change (Lutzke et al., 2019).

The role of media, especially digital media, is very important in this context. Mass media has widely been regarded as an effective tool for education and awareness. However, digital media has made it easier and more convenient to reach a large number of people with the intended message. It is a major source of information for the people of the modern-day world as it keeps them updated and aware of the happenings all over the world (Mongar, 2022). Digital media users also tend to be more aware and informed about the phenomenon of climate

change and its effects on human life, the economy, and the environment. Some experts also believe that the users of digital media are more familiar with the concept of climate change as compared to those who do not use it (Comfort & Park, 2018). This paper is an attempt to collect evidence if digital media users are more aware of climate change and if this awareness translates into their actions as well. The paper investigates the level of climate change awareness concerning digital media usage. Moreover, the data is collected to find if there is an action-awareness gap among digital media users or not. A mixed methodological research approach is used for the data collection. The analysis data collected through surveys and interviews helped formulate recommendations and suggestions to make effective use of digital media to combat the challenge of climate change.

Literature Review

Lutzke, L. et al. (2019) believe that the impact of climate change is extensive, and all living beings are to be victims of this impact in one way or another. Shortages of water and food are already compelling people and animals to migrate to other lands. However, those lands are also facing a decline in food production and waste resources. The situation will eventually lead to a situation where living beings will fight with each other for water and food to assure their survival. Comfort & Park (2018) expressed the concern that alteration in temperature and rainfall is causing food and waste scarcity, and the chances of famine are increasing, especially in underdeveloped parts of the world where food systems are more vulnerable.

Keller, et al (2020) found an abundance of information available on various digital media platforms related to climate change and its impact. There are many websites and social media communities where digital media users can learn about the impact of climate change and the possible ways to deal with it. It implies that digital media is among the powerful tools for raising awareness about climate change and providing people with an action plan through which they can perform their roles in mitigating the effects of changing climatical conditions upon their surroundings. Fownes et al., (2018) explain that it is common to see people discussing issues and solutions related to various social media platforms. Sometimes, environmental activists also initiate trends, discussion threads, and campaigns to make people more and more aware of climate change and the activities to perform to combat this problem. Digital media content is usually easily accessible, and the number of users engaged in these platforms is also increasing with each passing day. Policymakers can effectively use digital media to build a sense of responsibility and engagement among the communities through digital media campaigns. They can also use digital media to share information and updates about the impact of climate change to make people realize the severity of the issue and the urgent need to take appropriate action.

Boussalis, Coan & Poberezhskaya (2016) believe that on the one hand, digital media is a very helpful tool to raise awareness about climate change but, on the other hand, there is also the possibility that these platforms spread misconceptions and misinformation about climate change. It is because only professional content creators do not create content for digital media, but the citizens also make substantial numbers of posts, videos, and other material. Therefore, there is a possibility that the content contains false and inaccurate information or misleading advice that eventually can result in further damage to the situation. It implies that verifying the information and facts available on digital media is critically important to avoid any action in the wrong direction.

The study conducted by Tuitjer & Dirksmeier (2021) concluded that digital media has the potential to aware people of climate change through a variety of content types but, at the same time, it is also important, to keep a check on the information shared on social media platforms related to climate change. The researchers observed that unfortunately, some content creators on digital media platforms use false information, inaccurate facts, and sensationalism. This practice rather than supporting the cause of climate change awareness, is causing damage to it. Keller, et al (2020) also affirms that people who rely on digital media as their main source of information and aspiration tend to embrace several misconceptions and act accordingly. It may result in the adoption of activities that will not benefit the environment but instead provide harm to it.

Painter et al., (2018) believe that dealing with the aftermaths of climate change is a challenging and complex process. This requires meaningful collaboration between all the stakeholders including the government and the citizens. For this purpose, digital media appears to be a very useful source because it can bring all these stakeholders on single platform and design strategies that can help in dealing with this problem with the support of the community and all related authorities. Poortinga et al., (2019) also believe that coordinated efforts are very necessary to minimize the impact of climate change. Such efforts are possible only when there is a high level of awareness among the masses regarding the problem. This awareness can be spread through a variety of tools and digital media is the most effective and fast way of doing this. Launching campaigns through digital media to promote greenery, sustainable waste management, and other initiatives to heal the earth can help bring improvement to the situation.

Hassan, et al (2023) suggest that digital media has much more potential than acting as a tool of awareness. The researchers believe that digital media use for creating awareness is just one activity that can help in the climate change challenge. But the interactive characteristics of digital media allow to engage individuals and communities in various activities like cleaning drives, recycling projects, and plantation activities. This way, digital media can bring visible changes in the environment through communication participation and engagement.

Pearce et al., (2018) observe that abundance of information on digital media related to climate change however, it is equally important that the information provided to digital media users must encourage them to take appropriate actions to mitigate the effects of climate change. It is very important to develop a sense of urgency among individuals and communities so that awareness can be translated into actions. Xu, Laffidy & Ellis (2022) affirm that the number of users of digital media is growing massively. Therefore, the potential of this medium to spread climate change awareness must be recognized worldwide. Especially social media platforms can perform an active role in this regard, by creating communities and groups to promote actions and strategies required to deal with climate change.

Huang (2016) discussed the importance of digital media for community engagement and asserted that a collective sense of responsibility is an essential requirement to deal with the issue of climate change, and digital media seems to be the most effective and efficient tool to develop it. Even though digital media appears to be a very efficient tool in this context to many researchers and experts, Tuitjer and Dirksmeier, (2021) believe that there are several limitations to consider while using this media for creating awareness. The quality, accuracy, and credibility of the facts and information shared on digital media must pass through a strict fact-checking process before publishing, which is unfortunately impossible on many social media platforms. Consequently, there is a high chance of sharing false information with the users, and they will develop misconceptions about climate change. This research identified a very critical issue that instead spreading awareness and information, some of the digital media platforms are acting as source of misinformation by spreading myths and unverified news among the masses. This concern was also raised by Fownes, Yu, and Drew (2018) as they suggested that awareness campaigns aimed to inspire community action must not spread false information and myths through digital platforms. Therefore, it is important that the government and related authorities must keep regularly inspect and monitor the content related to climate change shared on various digital media platforms. Boussalis, Coan & Poberezhskaya (2016) suggested that along with websites and social media networks, smartphone applications can also serve the purpose of awareness creation and community action in the context of climate change. The research suggests that the government and agencies working on the environment must develop such applications that can not only inform and aware people but, can also track their actions following climate change.

Research Gap

The role of digital media in climate change awareness and action is still an under-discussed topic in Pakistani literature. The review of the related research shows that there are limited studies conducted so far to identify the ways through which digital media can be utilized for awareness creation among the masses. Although there are some researchers like Hassan et al. (2023); Nadeem & Nawaz

(2022) and Ishaque, Rida, and Mudassir (2022) who have conducted research to explore the ways through which traditional media can help in making people aware about climate change, but there is no considerable research work don't to explain the role of digital media in this regard. Therefore, the researchers believe that a gap exists in the literature and to fill the identified gap, this research paper explores the issue with the help of a mixed methodological approach.

Methods

A mixed methodology approach has been employed to collect data for this research study. The quantitative data has been collected through a survey among 200 digital media users of Pakistan. Qualitative data is gathered with the help of in-depth interviews of five environmentalists and digital content creators of Pakistan. The outcomes of the survey and interviews provided detailed and valuable insight into the link between digital media and climate change. This link is explored both in terms of awareness and action. The survey questionnaire was constructed using digital media usage scale and climate change, and awareness scales. It helped understand the climate change awareness and behavior of digital media usage concerning the time spent on digital media. The qualitative data collected through the interviews throws light on the perception of environmentalists about the effectiveness of digital media and their experiences in interacting with people through this platform for climate action. Descriptive techniques of frequency and mean are used for data analysis along with the Pearson Correlation Test that helped in determining the relationship between the variables of this research i.e., Digital Media (Independent variable) and climate change awareness and climate change action (independent variables)

Results

An online survey was carried out through Google Forms using convenience sampling technique. The link of the survey was shared on multiple social media platforms until the required number of responses were received. The questionnaire was based on self-constructed five-point climate change action and climate change awareness scales. The outcomes of the survey are presented in this section.

Table 1:

Gender and Internet Usage Behavior of respondents

	Frequency	Percentage%
Gender		
Male	203	40.5
Female	297	59.5
Internet Usage		
Less than 2 hours	35	7
2-4 Hours	165	33

4-6 Hours	205	40
More than 6 hours	95	19

The respondents were asked to select their behaviors related to climate change awareness from 51-5 where 1 stands for strongly disagree and 5 donates strongly agree. The outcomes of this questions along with the collective meaning are presented in Table 2.

Table 2:

Climate Change Awareness Score

	Statement	1	2	3	4	5	Mean
1	Climate change is real and primarily caused by human activities.	0	0	40	120	340	4.60
2	I support government policies and initiatives aimed at addressing climate change.	0	50	65	190	195	4.05
3	I support businesses and organizations that prioritize sustainability and reducing their carbon footprint.	0	15	148	147	190	3.91
4	I vote for politicians who prioritize addressing climate change.	20	43	13	155	158	3.64
5	I believe that its my moral obligation to act on climate change.	0	38	24	189	249	4.26
6	I regularly read the latest developments and research on climate change.	43	77	203	85	92	3.21
7	I follow social media accounts that teach about ways towards sustainability	40	15	128	150	167	3.78
Total		113	257	650	1057	1413	3.92

Table 3 shows the score collected for the climate change action as per the responses collected from the survey participants.

Table 3

Climate Change Action Score

	Statement	1	2	3	4	5	Mean
1	I regularly take actions at personal level to reduce my carbon footprint	20	28	102	168	182	3.41

2	I consume products that have a smaller carbon footprint.	0	28	132	165	175	3.97
3	I frequently participate in activities and campaigns to raise awareness about climate change.	32	45	66	137	220	3.31
4	I educate others about the importance of addressing climate change.	1	102	140	137	120	3.55
5	I consider the environmental impact of my daily choices and use public transportation for the sake of environment.	20	98	122	117	143	3.53
6	I support and participate in community-level initiatives aimed at environmental sustainability	16	102	112	170	100	3.47
7	I often take part in plantation activities in my surroundings	32	46	147	140	135	3.6
8	I try to grow some fruits and vegetables at my home	45	32	133	105	185	3.64
Total		167	481	853	1139	1260	3.56

In order to find out the relationship between digital media usage and climate change awareness and action, Pearson Correlation coefficient was calculated with the help of data collected from the survey. The results are presented in table 4.

Table 4:

Pearson Correlation Coefficient

Independent Variable	Dependent Variable	Correlation Coefficient
Digital Media Usage	Climate Change Awareness	0.51451
Digital Media Usage	Climate Change Action	0.378893
Climate Change Awareness	Climate Change Action	0.982175

A correlation coefficient of 0.514509969 indicates a moderate, positive linear relationship between digital media and climate change awareness. A correlation coefficient of 0.378892775 between digital media usage and climate change action indicates a moderate, positive linear relationship between the two variables. It means that as digital media usage increases, climate change action is also likely to increase, although the relationship is not very strong. A correlation coefficient of 0.982175411 indicates a strong, positive linear relationship between two climate

change awareness and climate change action. The data shows that more climate change awareness results in more climate change action.

To get deep insight into the issue, interviews of environmentalists and digital creators were conducted. For this purpose, 5 digital content creators were selected who use to publish content related to environmental sustainability on their YouTube channels and Instagram and Facebook accounts. The responses collected from the interviews show that these content creators are aware of the significance of digital media for climate change awareness. Therefore, they have been sharing valuable information and persuasive material on their accounts to motivate people to adopt a sustainable lifestyle that can reduce the harmful effects of climate change. The interviewees observe that usually, digital media users pay more attention to entertaining videos and posts. The posts and videos comprising information about the environment often fail to get the attention of the users. They also observe that there is a lack of awareness and understanding among the masses that their activities are also causing damage to the environment, and they can save the earth by taking some small steps.

The interviewees revealed that due to the low level of interest of online users in serious content, they are focusing on new and creative ways to bring the attention of the masses to this critical issue. With time, they have observed a gradual shift in the interest of users and now many users like to get engaged in talks about the environment and its sustainability. The growing interest and engagement of users in environmental issues is a positive indication. The content creators consider it a great opportunity and have launched some campaigns on their channels and accounts to mobilize people in some activities to support climate action. They shared that digital media is a cost-effective platform to reach people and convey the message to act for the protection of the environment. There are now many communities on social media platforms that advocate sustainable ways of living and engage people in campaigns, drives, and projects that help improve the deteriorating situation of the environment.

However, one of the environmentalists who is also a very popular and active digital content creator, recognizes that sometimes some creators want to attract traffic towards their websites and social media accounts. In doing so, they often ignore the importance of fact-checking before posting any information and often share misleading facts that create sensation and engage users with their content. This is damaging the cause rather than supporting it and the authorities must make strict rules to deal with the content creators who spread misleading, inaccurate, and false information and harm the environmental sustainability efforts.

The data presented in Table 2 and Table 3 confirms the potential of digital media in making a difference in the context of climate change by raising awareness among the masses and convincing them to take climate action. However some studies (e.g. Painter et al., 2018; Hassan et al, 2023) also revealed that there is abundance of information about climate change over the internet and people often came across misleading information about this issue.

The gap in climate change awareness and climate change action indicated in Table 4 is also attributed by the fact that the daily routine and habits of people are not considerate towards the issue of climate change. People of Pakistan specially find it difficult to change their lifelong routines and adopt new one for the sake of the environment. Lack of understanding about the severity of the issue is also an important reason behind the gap identified in this research.

Conclusion

This research sums up with the conclusion that study concludes that digital media is an important vehicle that needs to be utilized strategically for intensifying awareness and action related to climate change. The role of digital media is very crucial in this context but the likelihood of spreading fake information and propaganda is also observed. The gap identified in climate change awareness and action insists that there is a need of creating strategies for making the most of digital media for this purpose because the strong correlation between climate change awareness and action shows that the more people are aware of climate change, the more they are likely to act. Therefore, the study suggests the following actions to assure that for raising climate action awareness and action, digital media is appropriately used to its full potential. The study recommends the following actions.

- **Accurate and reliable information sharing:** Digital media is a very useful and effective platform to share information however, it is mandatory to assure that the information shared on digital media platforms related to the climate change issue is accurate and extracted from reliable resources. Authentic information must be available to people so they can comprehend the causes and effects of climate change and gain a deeper understanding of the problem based on scientific reasoning.
- **Engaging and Compelling Content:** As revealed in the interviews, users take more interest in entertaining content as compared with serious and information-rich one. Therefore, a creative approach is required to design a communication strategy to engage more users in talks and discussions about climate change on digital platforms. It will gradually create a sense of responsibility among digital media users, and they will seek more information about the issue and the ways to deal with it. A variety of content types including infographics, videos, visuals, animations, memes, and discussion forums can help in this regard.
- **Initiative Social Media Activism:** Hashtags, online petitions, trends, hosting online events and conducting awareness sessions, slogan competitions, reward programs, and campaigns must be launched frequently to promote activism on social media regarding climate change.

- Collaborate with Influencers: in the digital era, influencers and bloggers have evolved as strong opinion leaders. The government and agencies working on this cause must take social media influencers on board and collaborate with them to spread the message to the people.
- Strict Monitoring of Climate Change Related Content: There is very low level of gatekeeping on digital media platforms related to climate change related content. Due to which spread of misinformation, baseless myths and misconceptions is very common. It is very necessary that the government must establish a social media team to monitor and regulate such content so that the spread of misinformation can be prevented.

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