

Climate Change: Social Media Influences and Public Awareness

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Abstract: Climate change is a serious issue that affects the lives and livelihood of people. This issue had to be tackled at the earliest to save the world from serious catastrophe. Media plays a major role in creating awareness and behavioral change among the public. Social media is the new medium for communication among people to sensitize the issue. Since most of the people are accessing information through mobiles and tablets the level of awareness are high among the general public. This paper analyses the literature on influence of social media on climate change among public which will be helpful for the future researchers. This paper serves to highlight the important research done in the field of climate change communication.

Keywords: Climate change, Social media, Face book, Influence of social media, Global warming.

1. INTRODUCTION

Media plays a vital role in educating and helping the people and the government to protect and preserve the natural resources in the interests of future generations and the climatic chaos. Sustainable Development is attained by protecting the environment in a judicious use of natural resources. Both the rich and the poor countries have an equal stake in this stewardship of the earth. The very survival of the planet depends upon it. In this regard media plays a pivotal role in creating awareness and bringing the positive behavioral change among people in mitigating the anthropogenic climate change. Consequently, the role and the responsibility of Communication and Mass Media are immense in Climate Change and Sustainable Development. Social media use is an important area within climate change communication; however, research on the topic is quite nascent. Major perspectives on social media are discussed and existing research is outlined on different areas of climate change perceptions, including opinion, knowledge, and behavior, identifying how research on communication in social media forms has been applied to each area.

2. CLIMATE CHANGE

Climate change is also difficult for us to process because of something called the Identifiable victim effect most of environmental researchers are accepting that climate change is an ideal topic for most, and public awareness about it forms more readily in the presence of building it psychologically nearer to the individual. Information filtered through social media may be one of these personalizing and concretizing experiences that bring climate change nearer to individuals.

Main factor in anthropogenic climate change is the increase in the concentration of carbon and other unwanted substance in the atmosphere over the period of time. Increased concentration has been caused by the emission of GHGs as a result of economic activities, including energy, industry, transport, and land use, many of which rely upon fossil fuels. Most important GHG, carbon dioxide, currently constitutes 77 per cent of the global warming potential. Other contributors are methane (from agricultural sources), and land use change such as deforestation. Concentration level has increased because emissions during the last two centuries were in excess of what could be absorbed, and the excess GHGs began to accumulate in the atmosphere. Concentration of CO₂ alone has increased by some 100 ppm over this period¹.

¹ Stern, N., and others (2006). The Economics of Climate Change. http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm.

Climate change will have wide-ranging effects on the environment, and on socio-economic and related sectors, including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Changes in rainfall pattern are likely to lead to severe water shortages and/or flooding. Melting of glaciers can cause flooding and soil erosion. Rising temperatures will cause shifts in crop growing seasons which affects food security and changes in the distribution of disease vectors putting more people at risk from diseases such as malaria and dengue fever. Temperature increases will potentially severely increase rates of extinction for many habitats and species (up to 30 per cent with a 2° C rise in temperature).²

Social media establish news and information about social issues in a social perspective; it provides a personal context for individuals. Information is filtered through friends, and sites such as Face book provide information based at least partially on an individual's previous information habits.³ Social media use is frequently conducted in visual form, with half of social media users sharing or reposting news stories, images, videos, and climate change is effectively communicated visually.

Social media personalizes social issues in several ways, and thus an appropriate lens through which to analyze climate change opinion. Analyzing social media use raises the question: how much or how often do people actually discuss the topic of climate change over social media? Data available suggest 7% of Americans share information about global warming on Face book or Twitter, and 6% of Americans have posted a comment online in response to a news story or blog about global warming. These numbers are quite a bit lower than the frequency of discussion offline. About 35% of individuals in the United States report discussing climate change with family or friends at least occasionally.⁴ Thus, individuals are not broadly discussing climate change in social media spaces, many reason are there such as most of the users spending time in social media for sharing personal opinion, personal characters, personal images and personal knowledge.

Analyzing social media also provides a setting to examine what opinions and sentiment members the public have about climate change. Several studies have assessed the sentiment of discussions about climate change or climate change events on different social media. We can better understand what people associate with climate change because of these discussions. One study that examined sentiment in Twitter posts showed that people talk negatively about the climate-related topics of natural disasters, oil drills, and climate bills but talk positively about climate rallies, green ideas, and a book release.⁵ Climate change and global warming tend to bring together more negative tweets, such as global warming being catastrophic, than positive tweets, such as weather being more pleasant due to climate change. The difference between negative and positive tweets, however, is greater for global warming than for climate change. In all, there are a range of topics people associate with climate change in their social media discussions that tend to reflect a negative tone, although not exclusively a negative tone. Social media content examine how people frame the issue in their discussions. Again, some of these studies compare global warming to climate change. For instance, one analysis of tweets in the United Kingdom, United States, Canada, and Australia found the phrase *global warming* is typically associated with more "hoax" frames or the idea that the issue is a hoax than the phrase *climate change*.⁶

3. ROLE OF MEDIA ON CLIMATE CHANGE

Media can focus on factors that cause environmental problems as well as adverse impact on people. The environmental problems, which threaten the present day existence as well as the future of humanity, are brought to peoples notice by the media. Some of these issues are really quiet alarming and need to be focused upon, so that people can be made aware of their intensity. Straight reports, discussions, photo features and articles by experts help in informing the people about different aspects of climate change issue. Most of the people living in rural areas in our country have to rely on media for

² <https://unfccc.int/resource/docs/publications/impacts.pdf>

³ Pariser, E. (2011). *The filter bubble: What the Internet is hiding from you*. New York: Penguin Press.

⁴ Leiserowitz, A., Maibach, E., Roser-Renouf, C., & Feinberg, G. (2013). *How Americans communicate about global warming in April 2013*. New Haven, CT: Yale Project on Climate Change Communication.

⁵ Cody, E. M., Reagan, A. J., Mitchell, L., Dodds, P. S., & Danforth, C. M. (2015). Climate change sentiment on Twitter: An unsolicited public opinion poll. *PLoS ONE*, 10(8), 1–18.

⁶ Jang, S. M., & Hart, P. S. (2015). Polarized frames on "climate change" and "global warming" across countries and states: Evidence from Twitter big data. *Global Environmental Change*, 32, 11–17.

information. Therefore, it is the media which should act as the bridge between/among the scientists, policy makers and vulnerable communities to raise awareness to fill the information gap. It is well understood that climate change is an issue which requires diverse efforts.⁷

General people may not be able to assess the impact of many of the environmental problems persisting around them. The effect of the depletion of ozone layer and its long term effect on global warming, poses threat of melting ice caps in the polar region. The inducing rise in sea level and extinction of all species of living beings on earth cannot be comprehended in full measure by everybody. If media attempts to educate the masses on such vital issues, at least, the intelligent and right-thinking people will become aware about the need to take the precautionary measures and they get sensitized towards the natural resource conservation and protection.⁸

Mass media cues play a vital role in climate change perceptions and creating awareness. This essentially means that politicians, advocacy groups, and traditional mainstream media all play roles in how people perceive climate change.⁹ For example, Indian media expose a nationalistic attitude toward climate change and other environmental activities with the ideas that compliance with carbon emissions reductions will limit India's growth, and this frame plays into the larger public discourse on the topic.

Social media is another cue that can be added to elite cues that impact climate change opinions. It is worth noting that social media cues can also be from elite sources, such as government organizations, and can be an effective avenue for building credibility for the organization and disseminating risk-based messages. It is likely that climate change messages from elite organizations in social media can be effective means for shaping opinions alongside previously identified elite cues from more traditional sources..

Research indicates social media contributes to the specialized knowledge of climate change and the development of knowledge communities around climate change. Indeed, Twitter streams around major climate change events such as marches during the 2009 Fifteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 15) that were identified through hash tags have been referred to as "long-running epistemic communities".¹⁰ Internet use can give space for cognitive processing that is more reflective and based on reason. While this advanced cognitive processing is not a direct measure of knowledge, it is a component of more critical thinking about the issue. Some studies provide evidence that online comments about climate change can be deliberative, meaning that they consider a variety of perspectives on the topic rather than displaying a narrow perspective. This provides support for the idea that consumption in the online social context can provide a space for reasoned reflection or cognitive processing of the issue of climate change.

Expressive social media use also provides space for contributing to a deliberative community. For instance, an online tool called Climate Feedback encourages scientists to add annotations, such as further evidence or support for or disagreement with a published perspective, to stories in major news outlets.. The open science movement also suggests Internet-based platforms can provide more transparency to the scientific process, potentially providing space for more knowledgeable debate about the often controversial issue of climate change. While spaces for deliberation are not directly related to knowledge, reflective cognitive processing that can occur in deliberative spaces indicates people are thinking more deeply about a topic. Such cognitive processing is a positive outcome that can relate to greater knowledge.

Generally, relatively few studies have examined the relationship between Internet use or social media use and climate change activism or engagement, even though several studies on a range of political issues have shown a relationship between social media use and political action.¹¹ Climate changes study frequent usage of online versions of traditional media outlets was positively associated with intentions to adopt more political behaviors related to climate change, such as becoming active in promoting policy change.

⁷ Khan, S. (2012, 2 1). Role Of Media In Climate Change. Retrieved 03 25, 2018, from envirocivil.com:
<http://envirocivil.com/climate/role-of-media-in-climate-change/>

⁸Y PrabhanjanYadav,(2011) Role Of Communication In Climate Change And Sustainable Development, Global Media Journal.2

⁹Brulle, R. J., Carmichael, J., & Jenkins, J. C. (2012). Shifting public opinion on climate change: An empirical assessment of factors influencing concern over climate change in the U.S., 2002–2010. *Climatic Change*, 114(2), 169–188.

¹⁰Segerberg, A., & Bennett, W. L. (2011). Social media and the organization of collective action: Using Twitter to explore the ecologies of two climate change protests. *Communication Review*, 14(3), 197–215

¹¹Boulianne, S. (2015). Social media use and participation: A meta-analysis of current research. *Information, Communication & Society*, 18(5), 524–538.

Few research studies find the approach for examining how online activities support offline activism related to climate change and public awareness. Internet-based advocacy organizations for climate change, which at least sometimes utilize social media to communicate with or to members of the public, are successful in mobilizing offline publics and influencing policy debates around the environmental issues. Most of the studies about climate change and environmental awareness discussions over Twitter provide evidence that people tend to speak to others who are like-minded, with a minority of users talking to people who share diverse views. Some researchers argue that opinion leaders on social media for climate change are few in number and highly concentrated among elite journalists, organizations, and celebrities as evidenced by an analysis of Twitter and face book discussions in which relatively few profiles dominate the discussion, social media may be limited to mobilizing among an already-committed group of individuals in our observation.

4. ROLE OF SOCIAL MEDIA IN PUBLIC AWARENESS ON CLIMATE CHANGE

‘New media’ are defined in this chapter as media which are integrated, interactive and use digital code¹². Social media websites involves the use of the internet to connect users with their friends, family and acquaintances. This inherent anonymity does, however, also bring significant challenges, particularly in web comment forums and on blogs – although these challenges are by no means limited to climate change alone, but rather characterize wider participation within liberal democracies. “In a nutshell, social media and emerging technologies effectively democratize knowledge and information, causing a shift in the patterns of communication between and among stakeholders, and driving increased transparency and accountability. In effect, social media facilitate advocacy and action.”¹³

Social media websites and web pages are not essentially about meeting new people online, although this does happen. As an alternative, they are primarily about connecting with friends, family and acquaintances you already have. Very famous social media platforms in new media are Face book, Twitter, Blogs, Instagram, Whats app, YouTube and LinkedIn. These websites and WebPages allow you to share photos, videos and information, organize events, chat, and play online games. An early and popular definition of social media states that it is an online structure where individuals use their own profiles to connect with other individuals by creating lists of friends’ profiles. Expanding upon this, social media is one form of user-generated content, or online mediated content that is created outside of professionally produced and edited circles. Such content ranges from posts on social networking sites as defined by to other social content, such as comments people leave on news sites, reviews individuals write about restaurants, blog posts, and most-emailed articles lists on news websites.

At this time social media is conceptualized as social content online. Social media is not just about dealing with what people say about you online though, it’s about communicating with your customers and future customers, it’s about building a community, being part of other communities; it’s about educating people, listening to them, and letting them know all about you, your company, the people that work for you, your products, your services, your business philosophy, your integrity and organizational culture.¹⁴

Related research focused on classifying tweets related to climate change as subjective or objective, and tracked sentiment dynamics over time. More recent work analyzed social network structure around climate change communications and identified the most influential accounts that share information about climate change on Twitter.¹⁵ In this recent studies analyzed factors are related to climate change using social media, there is no work that focused on studying variations in fine-grained emotion, awareness and opinion dynamics toward specific climate change topics nor any that measured the influence of user demographics on expressing targeted opinions, or contrasted affects expressed by personal vs. non-personal accounts. This work extends to prior research work on the polarity of social networks lie twitter face book,

¹² Van Dijk, J. (2006) *The Network Society*, 2nd edn, Sage, London Whitmarsh, L. and O’Neill, S. J. (2009) ‘Green identity, green living? The role of proenvironmental self-identity in determining consistency across diverse pro-environmental behaviours’, *Journal of Environmental Psychology*, in press.

¹³ Allan, S. (2012, 4 28). Quora. Retrieved 03 12, 2018, from [www.quora.com: https://www.quora.com/in/What-role-does-social-media-play-in-the-environmental-movement](http://www.quora.com/https://www.quora.com/in/What-role-does-social-media-play-in-the-environmental-movement)

¹⁴ Mike Wicks, (2012) .*An Introduction to Social Media for Small Business*. A Blue Beetle Books Publication, 4-5.

¹⁵ <https://www.carbonbrief.org/mapped-the-climate-change-conversation-on-twitter>

YouTube, blogs and websites are relevant to climate change by focusing on the differences in fine-grained emotions expressed toward topics on climate change, and analyzing the influence of user demographics on affects expressed toward climate change and related topics on Twitter and other social networking sites.

Social Media is an addition and detonation of traditional word of mouth networks. Word of mouth has always been the most effective and trust worthy means of disseminating information. With the enablement of technology, anybody with an internet access and has an opinion can be part of social media. This cultural shift is a force to reckon with for companies. Social media consequently is an development of word of mouth that scaled up by leveraging the pervasiveness of internet. Most important elements of social media cover are Social Networking, Micro blogs , Blogs , RSS Feeds, Widgets ,Linking and posting , Content Rating ,Bookmarking sites , Audio podcasting ,Video podcasting , Chatting , Status Updates. Bloggers can provide new angles on climate topics and can break news faster than traditional media. Heffernan also notes how Web 2.0 has allowed researchers to communicate their own results into the blogosphere outside the traditional peer-review system.

Very meticulous aspect of social media is the idea that featured information feeds will emphasize preferences of the user. People have a tendency to select and interpret information for all types of issues, including scientific ones that support their existing viewpoints.¹⁶ Scholars are concerned this process is exacerbated in the online media environment, in which users can personalize their information feeds by following, liking, and sharing information from other users who are like them, often referred to as an “echo chamber,” in which individuals cluster among like-minded individuals. Recent evidence shows scientific news users engage in this behavior in social media sites like Face book and YouTube.

There were more than 500 million active users on Face book, 70 percent outside the United States in 2010.¹⁷ By March 2010, more than 10 billion messages, or Tweets, had been sent through Twitter since its launch in 2006. By July, that number had doubled to 20 billion.¹⁸ 50 percent of the total online population visited a social networking site in February 2010 in the Asia-Pacific region reaching a total of 240.3 million visitors.¹⁹ Social Media is conversation online and cannot be ignored since the customers, investors, critics; fans and competition are conversing in a medium that can be easily manipulated. Most of researchers categorize social media use as both expressive and consumptive. Social media use as consumptive is thought of as a more passive use of the medium, with individuals seeking out news and information on social media platforms and news exposure on the most popular social media sites like Face book being incidental, or something people come across while being on the site for other reasons²⁰. Social media can be used as a pressure point to prompt and encourage support during specific campaigns. For instance, Greenpeace targeted Shell Oil operations in the Arctic Circle, but used media such as this YouTube video to indirectly influence Shell partners, including Lego. Applying highly visible, public pressure to call for specific environmental changes has increasingly become a tactic of the environmental movement.²¹

Social media consumptive and expressive act in combination rather than individually or separately. When algorithms rely on both active and passive forms of social media use by its users are sharing or liking a link as the active form and clicking on a link as passive in Face book, Whatsapp, Instagram to design information feeds that users see, an individual’s news environment becomes highly personalized. In the context of social media use related to information around important political and social issues, this means that an individual’s online history and who they are friends with can play a role in how they interpret and perceive issues. Thus, the setting of social media is increasingly important for understanding public perceptions around the issue of climate change.

¹⁶Yeo, S. K., Xenos, M. A., Brossard, D., & Scheufele, D. A. (2015). Selecting our own science: How communication contexts and individual traits shape information seeking. *ANNALS of the American Academy of Political and Social Science*, 658(1), 172–191.

¹⁷“Statistics.” Press room. Face book Web site, accessed January 10, 2011.

¹⁸ Beaumont, Claudine. “Twitter hits 10 billionth tweet.” *The Telegraph*. March 5, 2010.

¹⁹ “Social Networking Habits Vary Considerably Across Asia-Pacific Markets.” Com Score press release. April 7, 2010.

²⁰Gottfried, J., & Shearer, E. (2016). News use across social media platforms 2016. Pew Research Center.

²¹Dosemagen, S. (2016, 1 28). Social Media and Saving the Environment: Clicktivism or Real Change? Retrieved 03 10, 2018, from www.huffingtonpost.com: https://www.huffingtonpost.com/shannon-dosemagen-/social-media-and-saving-t_b_9100362.html

5. CONCLUSION

Broad ranges and potential roles of social media can play in encourage and aware different attitudes and behaviors around climate change, and there are many unanswered questions in these areas of research. Mainly, parsing out the effects of different content-related components of climate change communication in social media is crucial for better understanding the role of social media in public perceptions about climate change. This review suggests a dim tone in the response of discussions on climate change and public awareness, but it is difficult to tell the nature of that lack of interest. Most of Scholars stated that language and iconic visuals that are alarmist in nature or rely on fear appeals may raise concerns but also separate audiences. While there is reason to be optimistic about the ability of social media to positively influence opinion, knowledge, and behavior around climate change, some caution that social media use may simply encourage more reinforcement of existing perceptions of climate change rather than reaching new individuals or changing opinions. Indeed, research in other risk contexts provides evidence that online social content in news comments can polarize existing risk perceptions, suggesting that social media may exacerbate existing divisions in society. While this could be a boon for mobilizing those already concerned about climate change, care should be given to considering the extent to which social media provides a doubtful perspective of climate change and the effect this may have on people who have not yet made up their minds about the issue. In addition, it could be that certain aspects of tone of social content positively engage others who have not thought much about the topic while other tones turn people off to any further engagement with the issue.

Social media discussions of climate change and public interest are conquered by selective exposure and activist, with less frequent cross-attitude interactions. Social media is an able to be seen place for the kinds of local and suitable languages and visuals that can be effective in activating individuals on climate change. For instance, weathercasters and news outlets can discuss and encourage photos and video materials social media posts about regional extreme weather events from users. Social media is also a natural space to break down complex general and environmental scientific information visually and graphically and reach large audiences through sharing information, visual materials emotional activities and discussion.

In conclusion, climate change–related online social content ranging from Twitter, blogs, face book, and whatsapp are discussions to news comments to online searches provide evidence for relationships between social media use and climate change opinion, environmental knowledge, and public behaviour. Given that research on the effects of online communication generally—and social media in particular—on climate change perceptions is minimal, further research will more clearly identify common patterns of these relationships. Early evidence suggests several positive impacts, with social media encouraging greater knowledge of climate change, mobilization of climate change activists, space for discussing the issue with others, and online discussions that frame climate change as a negative for society. Social media, however, does provide space for framing climate change sceptically and activating those with a sceptical perspective of climate change. Further examining and delineating these positive and negative aspects of social media for climate change perceptions is warranted.

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