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Social Media Climate Change Communication: A Study to Identify Which Kind of Visual Representation is Preferred in Social Media Climate Change Communication in Kerala.

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Abstract

Climate change is one of the most debatable and relevant issues of the present times in the world. India is most vulnerable to climate change because of its high population, illiteracy and poverty. (Thaker, 2017) With each year passing, the issues related to climate change are surging in India. India was earlier a country without any extreme weather conditions. But now it is evident that every year for the past three-four years particular regions of India like Assam, Bihar, Kerala etc are facing extreme rainfall, cyclones and floods. Even though news and articles about these environmental and climatic issues are being disseminated to the public through various platforms, people are still not properly awareof the matter. As per JagdishThaker's research "Climate Change Communication in India" there are still a lot of people who are not properly informed about climate change issues. This study aims to identify which kind of visual representation and social media platforms are preferred in communicating climate change. By studying these different aspects, this study will help in the better dissemination of climate change news and information.A quantitative analysis was used for the research.The was conducted in the state of Kerala among people of age 15-60 who are social media users. Questionnaires were circulated online for the study. A structured questionnaire was distributed online among 500 samples and responses were collected. Purposive Sampling and Stratified Random Samplingwere used for the study.

Keywords: Climate Change, Global Warming, Climate Change Communication, Visual representations, Social media.

Introduction

Climate Change is one of the most serious global challenges of the present times. It is now a focus of local, regional and national attention around the world. With each year passing, the issues related to climate change are surging in India. India was earlier a country without any extreme weather conditions. But now it is evident that every year for the past three-four years particular regions of India like Assam, Bihar, Kerala etc are facing extreme rainfall, cyclones and floods. Even though news and articles about these environmental and climatic issues are being disseminated to the public through various platforms, people are still not properly informed about the matter. There are still a lot of people in India who are not properly informed about climate change issues. (Thaker, 2017).

According to the survey conducted in November and December 2011 from 4031 Indias by the Yale Project on Climate Change Communication team, 7 % responded that they know "a lot" about global warming, 41% responded that "they never heard of it or I don't know", 72% believe it is happening and 56% believed that climate change is happening when a short description was given to them about climate change. A large number of Indians are still unaware of climate change. This is a major problem as a lack of proper knowledge about climate change can cause more serious issues. The main objectives of the study are to identify which kind of visual representation in social media climate change communication in Kerala and to identify the most used social media platform for

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communicating climate change in Kerala.

Visual representation mainly refers to pictures and diagrams that are used to make any subject easier to understand for the viewers. They include graphs, pie charts, videos, animations etc. Rather than writing down something, if it is visually represented it can be more appealing to the viewers. (Perini,2005)

Statement of Problem

India is now facing a lot of major climate change issues like floods, droughts, cyclones etc. Even though news and articles about these environmental and climatic issues are being disseminated to the public through various platforms, people are still not serious about the matter. As per JagdishThaker's research "Climate Change Communication in India" there are still a lot of people who are not properly informed about climate change issues. This is a major problem as a lack of proper knowledge about climate change can make more serious issues.

Studies of this nature are very crucial in the view of the role that social media plays in the faster dissemination of information compared to that of other mainstream mediums.

Literature Review

Research papers and journals dealing with climate change and mass media are chosen here for review. 'A study on climate change discourse in Facebook of Greenpeace' by N. Bhuvana and Arul Aram I (2015), the visual contents in the Facebook page 'Greenpeace' which mainly communicates climate change matters were analysed to study the role that Facebook and visual contents play in communicating climate change. The study showed that social media platforms like Facebook can attain the attention of the public easily and that if serious matters like climate change are communicated through fan pages like 'Greenpeace', it will have a higher reach. The research also highlights that if the likes on Facebook is turned into action, solutions for many climate change problem can be attained.

'Media, Politics and Climate Change: Towards a New Research Agenda' by Alison Anderson (2009), it is mentioned that stakeholders like politicians, NGOs, scientists or corporations now depend upon social media and the internet for disseminating information. With such a shift in the public's way of perceiving information, communicating about climate change and climate politics has become important. As more groups are turning towards the internet for communicating climate change, It is important to analyze the impact of various visual representations for better communication. In the research, the need for more researches relating to visual imagery in communicating climate change is mentioned.

'Influence of social media on climate change knowledge and concerns' by Adekunle Anthony Ogunjinmi and OluwatosinAdekoya, (2016) was carried out to study the influence of social media on climate change knowledge and communication. The study took place at the Federal University of Technology Akure, Nigeria using a qualitative method. The study showed that most of the people, that is 98.3% of people came to know about climate change through social media. It was also shown that 77.6% of people believed climate change occurs as a result of global warming that happens because of the burning of fossil fuels. Thus the study indicates that social media influences the knowledge and concerns relating to climate change. And that groups and organizations involved in climate change could use social media as an effective medium for communication.

The study by Sureshet.al(2020) found that that Instagram is indeed growing as a promising mainstream news platform in Kerala.The study by Kumar et.al (2020) found that the demographic variables such as age, gender and occupation were the key factors that affect the usage of time for

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health communication applications. Another study by Ranjith and Karthika(2018) made it very clear that trolls are informative and educative in purpose.

Methodology

As the main aim of the studyisto identify which kind of visual representation in social media climate change communication and to identify the most used social media platform for communicating climate change in Kerala., this study followed a quantitative method of analysis. The study was conducted in the state of Kerala among people of age groups 15-60 who are social media users. A structured questionnaire was distributed online among 500 samples and responses were collected.

Row	Demographic Variables	Levels	Count	Percentage

The questionnaire was having questions between 20-30 numbers. The two main sampling methods that were used in the study are Stratified Random Sampling and Purposive Sampling.

Research Questions

1. How effective is the use of visual representation in communicating climate change?
2. Which are the different platforms of social media that help with better climate change communication?

Objectives of the study

1. To identify the most preferred kind of visual representation in social media climate change communication in Kerala.
2. To identify the most used social media platform for communicating climate change in Kerala.

Hypothesis

1. Videos are more preferred than images and infographics in communicating climate change.
2. Instagram and Facebook are the more used social media platforms in communicating climate change than Whatsapp and Youtube.

Findings and Interpretations

This part of the paper sought to measure and analyze data using various statistical tools for different variables and constructs in the study. The results of the study are summarized and discussed here

1. Demographic Variables

Table 1: Demographic variables (Gender and Age), counts and Percentage

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1	Gender	Female	256	64%
		Male	149	37.3%
2	Age	18-25 Yrs old	337	84.3%
		26-35 Yrs old	49	12.3%
		36-45 Yrs old	11	2.8%
		46-55 Yrs old	8	2%
		56-60 Yrs old	3	0.8%

Table 1 shows that 64.3% of the respondents out of the total 400 are females and the remaining 37.3% are males. The age group of the respondents are also mentioned in the table. 84.3% of the respondent are between the age group of 18-25 years old, 12.3% are between 26-35 years old, 2.8% are between 36-45 years old, 2% are between 46-55 years old and the remaining 0.8% is between 56-60 years old.

Visual Representations and Climate Change

1.1. Effectiveness of photographs in communicating climate change through social media.

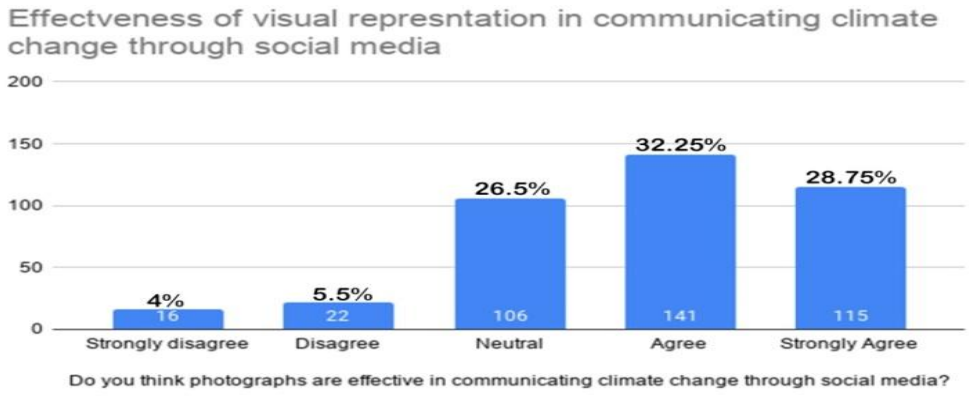

Figure 1.1: Graph showing the number of people preferring photographs in social media climate change communication in Kerala.

Figure 1.1 gives the percentage and count of respondents who chose strongly disagree, disagree, neutral, agree and strongly agree to the question of 'Do you think photographs are effective in communicating climate change through social media?'. Out of the total 400 responses, 4% chose 'Strongly disagree', 5.5% chose 'Disagree', 26.5% chose 'Neutral', 32.25% chose 'Agree' and 28.75% chose 'Strongly agree'. This conveys that most people find it easier to understand climate change through photographs. The ill-effects and future threats of climate change are easily communicated to the public with images that portray the various sides of climate change.

1.2.Effectiveness of infographics in communicating climate change through social media.

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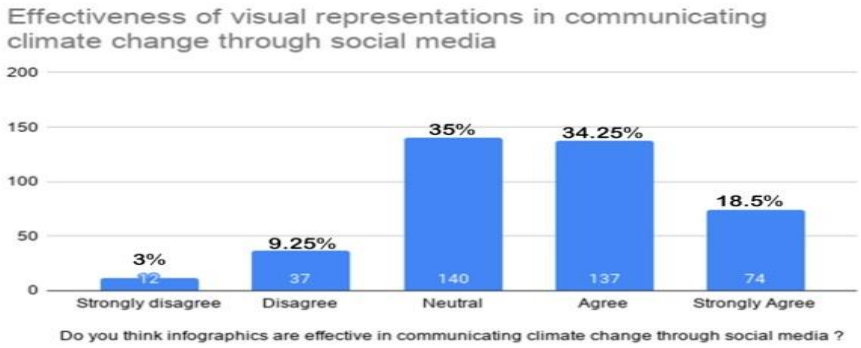

Figure 1.2: Graph showing the number of people preferring infographics in social media climate change communication in Kerala.

The count and percentage of responses to the question 'Do you think infographics are effective in communicating climate change through social media?' is given in Figure 1.2. Out of the total 400 responses, 3% chose 'Strongly disagree', 9.25% chose 'Disagree', 35% chose 'Neutral', 34.25% chose 'Agree' and 18.5% chose Strongly agree. Whereas 34.25% of respondents who chose 'Agree' find it more convenient to use infographics for knowing about climate change. And this result proves that people mostly have a neutral opinion towards the usage of infographics for understanding climate change.

1.3.Effectiveness of videos in communicating climate change through social media.

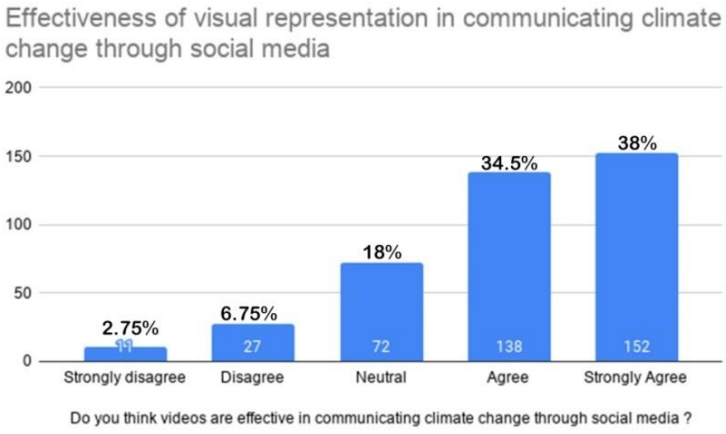

Figure 1.3: Graph showing the number of people preferring videos in social media climate change communication in Kerala.

Figure 1.3 illustrates the count and percentage of responses to the question 'Do you think videos are effective in communicating climate change through social media?'. On a total of 400 responses, 2.75% went with 'strongly disagree', 6.75% went with 'disagree', 18% went with 'neutral', 34.5% went with 'agree' and 38% went with 'strongly agree'. The above data shows that 38% of the total respondents chose 'Strongly agree' and 2.75% chose 'Strongly disagree'. This distinctly conveys that videos are a very effective type of visual representation which communicates climate change.

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Hypothesis Testing

H_1-Videos are more effective than images and infographics in communicating climate change

For proving this hypothesis, Multiple Regression analysis

Table 2 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852[a]	.725	.720	.25323

a. Predictors: (Constant), Videos, images infographics
b. Dependent Variable: CLIMATECHANGECOMMUNICATION

Here, R = 0.852. Since this is a very high correlation, our model predicts the climate change communication rather precisely.

Table 3 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.725	.077		9.371	.000	.572	.877
	Videos	.070	.021	.096	1.921	.028	-.001	.083
	Images	-.138	.040	-.144	-3.405	.773	-.218	-.058
	Infographics	.003	.023	.010	.148	.883	-.043	.050

a. Dependent Variable: CLIMATECHANGECOMMUNICATION

Let us take the independent variable videos. Here, the coefficient (b) =-.070, p=.028 which means it's statistically significant. Hence, videos are a significant factor in achieving difference in communicating climate change through social media.

While considering the independent variable images, the coefficient (b) =-.138 and p= .773. Here p>.05, which means, it not statistically significant. Therefore, images are not a significant factor in achieving difference in communicating climate change.

While considering the independent variable infographics also, the coefficient (b) =.003 and p= .883. Here p>.05, which means, it not statistically significant. Therefore, infographics are not a significant factor in achieving difference in communicating climate change.

Social Media and Climate Change

2.1. Usage of Instagram for communicating climate change.

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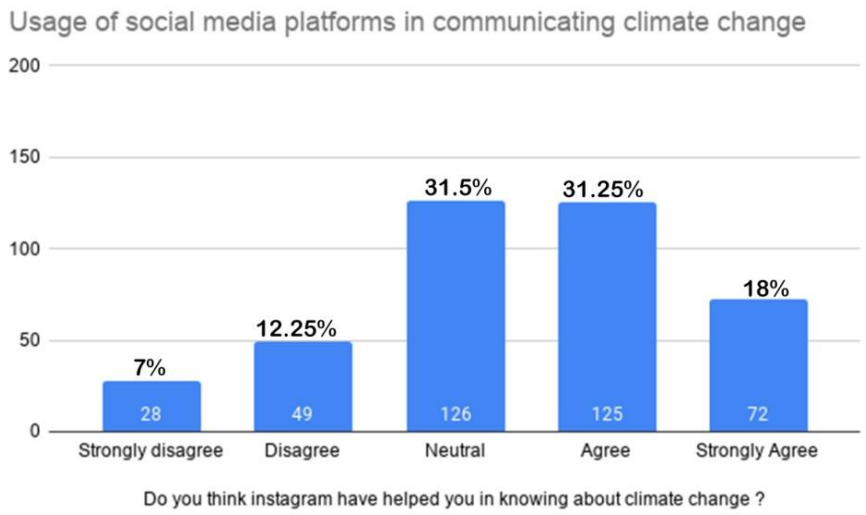

Figure 2.1: Graph showing the number of people preferring Instagram for climate change communication in Kerala.

Figure 2.1 shows the count and percentage of responses to the question 'Do you think Instagram has helped you in knowing about Climate Change?'.7% responded to 'strongly disagree', 12.25% responded to 'disagree', 31.5% responded to 'neutral', 31.25% responded to 'agree' and 18% responded to 'strongly agree'.The results of this particular question show that 31.25% of the total respondents prefer Instagram as a better platform for knowing more about Climate change. A lot of organizations that work for controlling climate change issues have active Instagram accounts that share news and pieces of information about various factors related to climate change.

2.2. Usage of Whatsapp for communicating climate change.

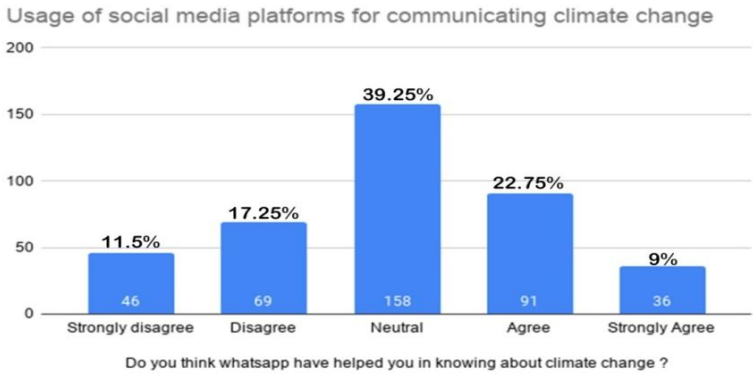

Figure 2.2: Graph showing the number of people preferring Whatsapp for climate change communication in Kerala.

Figure 2.2 shows the count and percentage of responses to the question 'Do you think Whatsapp has helped you in knowing about Climate Change?'.11.5% responded to 'strongly disagree', 17.25% responded to 'disagree', 39.25% responded to 'neutral', 22.75% responded to 'agree' and 9% responded to 'strongly agree'.

Whatsapp is a social media platform that is mainly used for chatting with people or sharing information. Respondents have a neutral attitude towards this social media platform as a medium of

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climate change communication. 39.25% of the total respondents chose the option 'neutral'. This neutral feeling might be a result of the problem of misinformation spread through WhatsApp. People are not sure about which to believe and which not.

2.3 Usage of Facebook for communicating climate change.

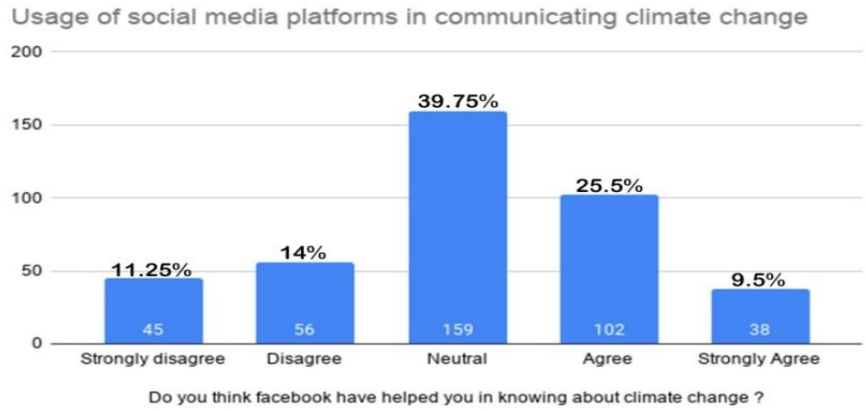

Figure 2.3: Graph showing the number of people preferring Facebook for climate change communication in Kerala.

Figure 2.3 shows the count and percentage of responses to the question 'Do you think Facebook has helped you in knowing about Climate Change?'.11.25% responded to 'strongly disagree', 14% responded to 'disagree', 39.75% responded to 'neutral', 25.5% responded to 'agree' and 9.5% responded to 'strongly agree'.

Facebook is another social media platform where people can share photos, videos, texts etc and also chat and make friends with people from across the world. 39.75% of respondents chose the option 'neutral for the question. This shows their neutral attitude towards Facebook as a medium for climate change communication.

2.4. Usage of Youtube for communicating climate change.

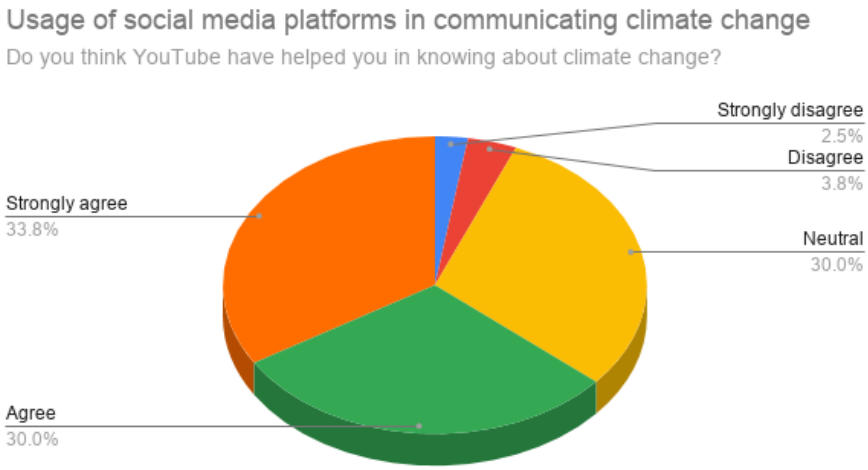

Figure 2.4: Pie Chart showing the number of people preferring YouTube for climate change communication in Kerala.

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Figure 2.4 shows the count and percentage of responses to the question 'Do you think YouTube has helped you in knowing about Climate Change?'2.5% responded to 'strongly disagree', 3.8% responded to 'disagree', 30% responded to 'neutral', 30.0% responded to 'agree' and 33.88% responded to 'strongly agree'.

Youtube is an online video platform which is owned by Google. People can share pieces of information with the public in the form of videos. From the above pie chart, we can distinctly understand that people find youtube as a comfortable platform for climate change communication. 38% of the total respondents chose 'strongly agree' as the answer to this question in the questionnaire.

Discussion

The study was intended to identify the most used type of visual representation and to identify the most used social media platform in communicating climate change. The research was carried out using a quantitative approach where around 400 responses were taken from people in Kerala.

The study identifies videos as the most used type of visual representation. The human brain recepts visual contents easier than written or textual contents. The human brain decodes visual images faster, while it takes a lot more process to decipher the language. (Parkinson, 2012) So communication using visual contents can be more effective than that of the written textual contents. As videos are coupled with audio-visual formats, it makes it easier for people to understand climate change. One of the best ways to make the public aware of different problems of climate change is by the usage of advanced features on information technology and social media networking platforms. (Hossain 2012). The result of the study shows that youtube is the most preferred social media platform by the public for climate change communication. If youtube videos are formed by focusing on any specific environment, it will help in providing better knowledge about the dangers of climate change. (Becerra, 2020).

One of the most popular worldwide internet activity is the consumption of online videos. According to a survey conducted in 2016, it found that around 25% of internet users around the globe consume online videos every day. (Statista, 2016). 160 million people consume youtube videos per month. (Youtube, 2016). Video contents accounted for 70% of the world's total internet traffic. (Cisco, 2016) Thus, if pieces of information regarding climate change are formulated as videos and posted through online social media platforms like youtube it will reach more audience than disseminating it through the traditional medium of communication.

Conclusion

This session presents a summary of the major findings of the study. From the results of the data analysed we arrived at a conclusion based on both of the objectives. It is found that pieces of information about climate change disseminated in the video format are what people find the most convenient to understand. The majority of the respondents out of the total 400 chose video for the question related to this objective. As videos give the audience both visual and audio content at the same time, people might understand things a little easier. Videos can do what an image or audio alone cannot do. Videos related to climate change matters that are disseminated through social media platforms usually contains a lot of pictures related to the damages that climate change can cause, which is coupled with voice overs or background music that causes a sense of fear or alertness.

The majority of the respondents chose youtube as the most used social media platform for climate change communication. This finding directly corresponds to the findings of the first objective. Youtube is an online social media platform where people communicate or share information in video formats. Thus, pieces of information related to climate change communication circulated

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through Youtube is more noticed and used by the public to gain knowledge regarding climate change concerns.

The hypothesis of the first objective is hence proved, as said in hypothesis videos are more effective than images and infographics for climate change communication through social media.

Whereas the hypothesis of the second objective is proven wrong as per the findings of the study. The hypothesis formulated was 'Instagram and Facebook are the most used social media platforms than WhatsApp and Youtube.' But the findings of the study shows that the majority of the respondents chose Youtube as the most used social media platform.

Scope for future studies

The study has only chosen the population of Kerala for the survey. This study can be further done by conducting surveys all around India. Also, the study can be done with other social media platforms like Twitter, LinkedIn, Tumblr, Pinterest etc. Another angle from which we can conduct this study is by choosing traditional media platforms like television, radio and newspapers and analyzing the types of contents used in it to make the public aware of the things related to climate change.

Limitations of the study

Data collection was difficult due to the Covid-19 situation. Even though the survey was carried out through online platforms, the work from home situation made it more stressful for people. The study was thus confined to a small group of respondents.

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