

Investigating Roles, Views and Attitudes in Social Media Communication Addressing Climate Change: A Corpus-Based Study

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ABSTRACT

Climate change (Henceforth, CC) is a universal issue that demands people's attention and immediate action. In this respect, social media language provides essential data for linguists to further examine this issue linguistically. This paper aims firstly to identify roles (actors) on climate change as a global crisis through YouTube interactions. Examining roles helps to check who is responsible for such crises according to the interlocutors' views. Secondly, the study aims to examine how interlocutors view the climate change issue. This gives insights into how audience from different parts of the world interacts with emergent crises. The corpus is collected from the digital interactions on videos posted by *BBC News* and *The Economist* Channels on YouTube. This study focuses on the comments on six YouTube videos related to climate change and posted during (2020–2022). These videos are explanatory in nature. They present the problem and highlight major concerns. Therefore, the audience find this topic engaging, thus, they reflect their views and beliefs by leaving comments. This is achieved by both quantitative and qualitative methodology. Integrating both corpus-based study and systemic functional linguistic study aided in answering the questions of this research objectively and systematically. In sum, studying the comments of communicators on YouTube plays a vital role in understanding the views, reasons, and solutions for this crisis according to interlocutors around the globe.

Keywords: attitude, corpus linguistic analysis, climate change, roles, social media interactions

دراسة الأدوار ووجهات النظر والمواقف في التواصل عبر وسائل التواصل الاجتماعي التي
تتناول تغير المناخ: دراسة مبنية على النصوص

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الملخص

يعد تغير المناخ قضية عالمية تتطلب اهتمام الناس واتخاذ إجراءات فورية للحد منها. وفي هذا الصدد، توفر لغة وسائل التواصل الاجتماعي بيانات أساسية للغويين لمواصلة دراسة هذه القضية لغوياً. تهدف هذه الورقة أولاً إلى تحديد الأدوار (الجهات الفاعلة) بشأن تغير المناخ كأزمة عالمية من خلال التفاعلات على اليوتيوب. ودراسة الأدوار تساعد على معرفة المسؤول عن مثل هذه الأزمات بحسب آراء المتحاورين على منصة اليوتيوب. ثانياً، تهدف الدراسة إلى دراسة كيفية رؤية المحاورين لقضية تغير المناخ. وهذا يعطي نظرة ثاقبة لكيفية تفاعل الجمهور من مختلف أنحاء العالم مع الأزمات الناشئة.

تم جمع البيانات من التفاعلات الحوارية على مقاطع الفيديو التي نشرتها قنوات BBC نيوز والإيكونوميست على موقع يوتيوب. تركز هذه الدراسة على التعليقات على ستة مقاطع فيديو على اليوتيوب تتعلق بالتغير المناخي وتم نشرها خلال (٢٠٢٠-٢٠٢٢). تسلط هذه الفيديوات المختارة الضوء على المخاوف الرئيسية لازمة تغير المناخ وبالتالي يعكس الجمهور المحاورين وجهات نظرهم ومعتقداتهم من خلال ترك التعليقات والتفاعل وابداء ارائهم. علما ان المنهجية لهذا البحث تعتمد على دمج التحليل الكمي والنوعي. إن دمج كل من الدراسة علم اللغة المدون والدراسة اللغوية الوظيفية النظامية ساعد في الإجابة على أسئلة هذا البحث بموضوعية ومنهجية. خلاصة الأمر، أن دراسة تعليقات المتحاورين على اليوتيوب تلعب دوراً حيوياً في فهم آراء وأسباب وحلول هذه الأزمة حسب آراء المحاورين حول العالم.

الكلمات المفتاحية: المواقف، التحليل اللغوي المدون، تغير المناخ، الأدوار، التفاعلات عبر وسائل التواصل الاجتماعي

1. Introduction

Social media language is one of the reflections of the development of technology. Studying and analyzing social media communication on various platforms such as youtube, blogs, Facebook and other online media networks is helpful in terms of understanding the linguistic

features of communicators' language around the globe. Not only this but also it gives a general idea about the development of language and its evolution. Any language changes constantly because of the speakers' demands, and this is part of its appeal. Seargeant and Tagg (2014) demonstrate that individuals no longer act as consumers of information as in reading the news but also act as actual participants in transferring information by reviewing and communicating their ideas.

Climate change is a constant theme that faces our planet. Miscellaneous news websites and platforms aim to reflect this issue in their own ways. Liu and Huang (2022) in their work point out that some scholars use the terms global warming and climate change interchangeably. However other scholars find the necessity to differentiate between them. In this paper, the term climate change will be used. Climate change advocates call for cooperation from the public, activists, and government to work collaboratively to tackle this crisis. But climate change is also special in that it is a worldwide issue that calls for collective action. Furthermore, a lot of the effects of climate change are unanticipated, such as extreme weather occurrences, which shapes public opinion and discourse in a unique way. Due to these characteristics, social media is a platform for revealing how the public is responding to climate change and how it may affect public opinion and advocacy movements (Fownes & Margolin, 2018).

Thus, the study aims to find answers to the following research questions:

- 1-How do interlocutors view the climate change issue?
- 2-What are the roles in the social interactions concerning climate change?
- 3- What is the prevalent audience attitude towards what is presented about CC?

So it can achieve the main aims of the study, firstly, to investigate the communicators' views on the issue of climate change by examining concordance lines around the word 'climate'. Secondly, identify roles that affect climate change as a global issue. Lastly, examine the interlocutors' attitudes about CC.

2. Literature Review

2.1 Social Media Discourse

Social media platforms are frequently characterized by increased interactivity and the disappearance of the distinction between composer and consumer (Seargeant & Tagg, 2014). Audience interact with texts digitally, such as commenting on online news sites or replying to media texts via Twitter, as well as creating their own media material on YouTube, Instagram, and other platforms. The rise in media interactivity has resulted in the "transformation of a previously unidirectional broadcast mechanism into one that is bidirectional and increasingly dialogic" (Neary & Ringrow, 2018, p. 305). As a result, the binary words 'producer/consumer' and 'addresser/addressee' do not adequately describe how individuals interact with media and inside digitally mediated environments.

The use of linguistic techniques on images can be beneficial in the multimodal analysis of media texts as media technologies advance and different text kinds interact. Like with many of the other frameworks described here, Kress and van Leeuwen's (2001) multimodal discourse analysis techniques rely on ideas of (systemic) functional grammar to describe and analyse the decisions made by individual text writers and their impacts on readers. The necessity to explain several stylistic decisions made by the text producer and their impact on the viewer/reader is expected to only become more crucial for media texts in online environments, where there are mixtures of static and moving images, sound, and text.

Internet language is also called computer-mediated communication. People worldwide use this language when they talk to each other by using electronic devices (Crystal, 2008). Furthermore, the internet language is known as the “language variety,” a system of linguistic expressions whose use is influenced by situational conditions and entails both writing and speech (Crystal, 2001, p.6). According to Danet and Herring (2007), internet language tends to represent both spoken and written language traits, as well as those that are uniquely digital. Depending on the CMC mode, these capabilities or features are used differently. For instance, synchronous modes are more speech-like than asynchronous types. However, many features are shared across modes, such as the emoticon (smiley face), abbreviations such as LOL (laughing out loud), rebus writing cu for "see you," and a tendency toward informality. Crystal (2007, p.52) ascertains that internet language is a “a genuine third medium” and it is described as a “fourth medium” after writing, speaking, and signing and that the rate of change has been phenomenal. Additionally, CMC experts show interest in cyberspace language because it deserves to be seen as a new variety of language (Thurlow et al., 2004, p.123). Moreover, internet language is a written speech that includes writing and speaking; it also comprises listening and reading (Para, 2016).

The widespread use of computer-mediated communication has had a profound impact on many aspects of people's lives, including their profession and education. Asynchronous forms of CMC include activities like emailing or posting on an online forum, whereas synchronous forms of CMC include things like having a conversation, which is what most people engage in a discussion forum (Mahdi, 2014). The terms “new medium of communication” and “High-tech media” refer to new media founded on computers, digital technology, and network-connected information. Furthermore, this new media is considered a form of

technology-based communication, such as social networking sites., CMC refers to communication mediated by interconnected computers between a group of people or individuals separated in time and space (Marani et al., 2020, pp. 96–97).

2.2 Discourse Media and Climate Change

A systematic search was conducted on three major academic databases (Google Scholar, Scopus, and Web of Science) for articles published between 2018 and 2023 that focused on linguistic analysis of social media language about climate change. The search terms used were "climate change," "social media," and "linguistic analysis." The search yielded few articles, and after screening the titles and abstracts.

The reviewed studies demonstrate the value of linguistic analysis in understanding social media language about climate change. The studies show that social media users express negative emotions and discuss a variety of topics related to climate change. Furthermore, users employ various discursive strategies and the climate change discourse on social media is fragmented. The findings of these studies can help inform communication strategies to improve public engagement with climate change. However, more research is needed to fully understand the nuances of social media language about climate change and its impact on public attitudes and behaviors toward climate change.

One major difference between the studies is the data sources used. For example, while some studies focused on Twitter data others used Facebook data, Instagram data, and YouTube data. This variation in data sources can influence the findings and conclusions of the studies. Another difference between the studies is the linguistic analysis methods employed. For instance, some studies used sentiment analysis to examine the emotional tone of social media posts about climate change while others used topic modeling to identify the main themes discussed in social media posts about climate change. Other studies

used discourse analysis to examine the discursive strategies used in social media posts about climate change, or network analysis to examine the social networks and interactions between users discussing climate change on social media. These different methods highlight the importance of using a variety of approaches to investigate social media language about climate change.

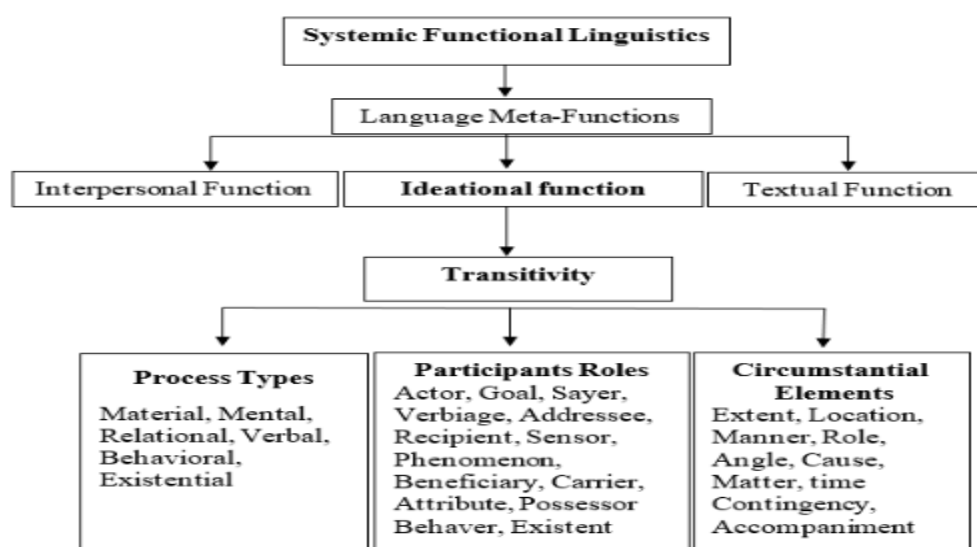
Despite these differences, there are some similarities between the studies. For example, many of the studies found that social media users express negative emotions toward climate change and discuss a range of topics related to climate change, including climate science, environmental impacts, and climate policy. Furthermore, users employ various discursive strategies to downplay the severity of the issue, and the climate change discourse on social media is fragmented. Overall, while there are some differences in the methods and data sources used, the studies reviewed in the literature review provide valuable insights into social media language about climate change. They demonstrate the importance of using linguistic analysis methods to understand public attitudes and perceptions towards climate change and highlight the need for further research in this area. In sum, the studies reviewed employed various linguistic analysis methods, including sentiment analysis, topic modeling, discourse analysis, and network analysis, to examine social media language about climate change. The studies used data from various social media platforms, including Twitter, Facebook, Instagram, and YouTube

3. Method Identifying roles in social media communications related to six YouTube videos posted by BBC News and The Economist YouTube channels is the main aim of the study. AntConc software tool (Anthony, 2022) has been used to facilitate the quantitative analysis. Using Corpus linguistics (CL) methods in social media language analysis enables objective and systematic analysis of a large sample of data.

Furthermore, CL provides empirical evidence for testing research assumptions and the generation of findings that cannot be obtained through manual analysis and reducing the researcher's bias. Detecting roles (actors) through interactions is tackled by employing Halliday's Systematic Functional Grammar SFL.

Figure 1.

The Theoretical framework based on Halliday and Matthiessen's (2014)



Then, Halliday also divides the system of transitivity or process types into six processes, namely: material, mental, relational, verbal, existential and behavioral processes. According to Halliday's (2004; 1985, p. 53) SFL, transitivity functions as a major component that deals with the "transmission of ideas, representing processes or experiences, actions, events, processes of consciousness and relations". Moreover, Halliday (1994, p.106) states that "Transitivity is concerned with each clause in a text. Through the analysis of transitivity, linguists can learn more about the actors, themes, and verb processes, leading to a better understanding of the events."

3.1 Metafunctions

Halliday (1994, p.110) explains that material processes are processes of 'doing'. They represent the idea that one entity does something 'to' another. In Halliday's (1985) introduction to Functional Grammar, the semantic and syntactic criteria that distinguish between processes are described (see also Halliday & Matthiessen 2014). Within these processes, various functions are recorded and stored in syntactic and semantic patterns. The focus of this paper is on the material process, which is concerned with the outer experience (represented in the climate change crises). The main participant roles include actor (anticipating the action) and goal (affected by the action). The formal is obligatory while the latter is optional (Al-Badawi & Al Najjar, 2021). An actor is a major participant in a material process, the main questions to test the role of the actor include "what did the actor do?" or "what happened?".

3.2 Examining Interlocutor's Views and Attitudes

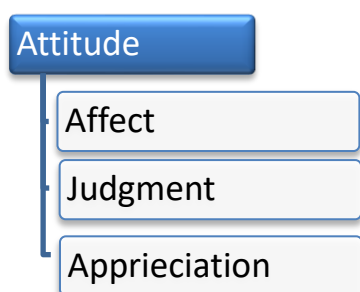
Examining interlocutor's views is part of a sentimental analysis (SA) or opinion mining process. SA is defined as the task of finding the communicators' points of view or opinions about topics. Sentiment analysis can provide substantial value to researchers because it enables them to track how communicators feel about various subjects and issues. Furthermore, views and opinions can be mined from their comments on different social platforms (Feldman, 2013).

To investigate attitude in discourse, it is important to know what is meant by this term. Attitude is referred to as "a system of meanings" by Martin and White (2005, p. 42). Basically, there are three types of attitude: affect, judgment, and appreciation. Emotion is one of the main semantic meanings related to attitude and it is known as affect. Affect assists in identifying positive and negative emotions, such as whether we feel pleased or sad, secure or uneasy, intrigued or uninterested. The standard grammatical realisation is adjectival for attitude and thus, it

helps to differentiate between its various types. For example, the use of the verb ‘feel’ by a participant (Participants who are conscious i.e. individuals, human collectives, and institutions) (Halliday & Matthiessen, 2014). An example of a relational attributive process “she feels content”. Martin and White (2005, p. 60) ascertain “the behaviour of these conscious participants is the target of judgment. Appreciation on the other hand targets things, whether concrete or abstract, material or semiotic”.

Figure 2.

Types of Attitude



The Data

To build the corpus of the study, the data is collected from six YouTube videos (3 videos posted by the Economist and three by the BBC Channels) published online from (2020–2022). The main selection criterion is based on the high number of views that reached thousands and millions of viewers who posted their opinions and reflections on the content of the videos. The corpus consists of (31959) tokens. The comments are exported through an online website known as YouTube Export Comments. Ethical guidelines have been followed by concealing interlocutors' names and details. Though these comments are written in a totally public mood. Unlike comments from other social media like Twitter and Facebook, YouTube interactions are meant to be public and there is less risk of breaking the codes of ethics to use the information for analysis. It is important to note that the social identity of

communicators like names ages, and nationalities is not part of this study.

The first video posted on October 2021 by the Economist Channel is about how the effects would be disastrous if global temperatures increased by three degrees Celsius over pre-industrial levels. It is an expected scenario, and this video depicts what it would look like. The second video by the same channel deals with the issue of who takes the responsibility of fixing the issue of climate change. The last video by the Economist discusses why politics have failed to tackle CC. The three BBC News videos selected for this study tackle the main issues related to CC. One of the videos published in 2022 deals with the scientists from the UN who have presented a strategy they think can stop the core causes of hazardous climate change. The second video presented information about those who are directly affected by CC and those who hold responsibility for this global crisis. In the last video Arnold Schwarzenegger, an actor and former governor of California, and a champion of clean air and renewable energy, in an interview speaks powerfully about tackling climate issues and some political lies concerning it.

4. Results and Analysis

The researcher finds it necessary to investigate the word ‘climate’ in the main corpus and to check it within context to answer RQ1. Thus, a search using the words list tool renders the following results as shown in Table 1. It is clear from the retrieval results that the word ‘change’ in the right context is the most followed climate in the corpus. Moreover, may examining the concordance line qualitatively, it is clear that the audience reacts negatively toward the issue of climate change. For example, they tend to describe it as a (hoax, fake, tax scam, a political tool, fallacy, the biggest hoax, a myth.. etc).

Table 1.

The concordance lines of 'climate'

getting mugged ,its a scheme worthy of James Bonds Spectre !"	climate	change is a fallacy Because the rewards are not
not parasiting off the working man struggling to get by!	climate	change is a hoax. Climate change is a way
investing like the rich "The messed up reality is that	climate	change is a product of Capitalist driven need for
big corporations that have caused the most damage I think	climate	change is a fake because the whether all over
doing this Martial law more than anything has restricted movement.	Climate	crisis is a tax scam. "No covid did noting
s mix with rats and sewerage like many poor countries	Climate	change is a pretend matter made up by the
man struggling to get by! climate change is a hoax.	Climate	change is a way for the loser class, including
entropy." These idiots are lunatics. I don't like Greta. "	Climate	change is a political tool used by globalists, private
actually exist. David Bellamy O.B.E Botanist and environmentalist."	Climate	change is a global problem, requiring global solutions. There
season... Landslides, and erosion nowadays has become very common	Climate	change is a concern those who think it's
if we can link the pandemic lockdown frontier individuals with	climate	change. We the populace should be worried more about
you liberal global warming kooks can.say that? More baseless	climate	drivel from the BBC presented by dumb presenters who
why the weather has been acting odd lately? Man-caused "	climate	change" is the biggest hoax of all time. Any
way to Everlasting Life. The sun and space control earths	climate	by governing the cloud cover and ocean temperatures, not
we suffer from their greed Who give a toss about	climate	change, all the ice in the world could melt
are against immigration tend to not believe in man affected	climate	change, considering the driving force for a lot of
is the fastest and easiest way of making money online. "	Climate	Change" is the next Covid. the UN will try
of this :I shouldn't the government take care of this	Climate	change is the biggest hoax pushed by leftwing globalists,

ones wanting a new updated mobile phone every ten minutes.	Climate	change is the perfect example of an enemy Humanity
Wrong by 13 years at **0:30**!* I was reading about reports concerning	Climate	Change in the newspapers in 1967 – when I was still
economy causes great suffering worse than any resulting from	climate	warming. Do not rely on the politicians to solve
clear in concluding there have been no increases in bad	climate	weather events – not surprising when one understands that man
people can make it happen. The harsh truth of the	climate	change is not that we don't have ways
IM NOT ASKING *NOW* The problem has been that the	climate	models have not shown to be accurate. Not the
not even attending COP26. So, since we will never prevent	climate	change, certainly not in the time frames talked about,
not slating the current leaders for their "lack of effort".	Climate	change is not my responsibility. I am a staunch
countries. This climate change is a bunch of BS. Our	climate	and temperature are controlled by the sun. Back in 2011
no to forced or coerced vaccines COVID-19 has shown those	climate	change forms are useless money spending opportunities for government
channel is pure garbage. How dare you ! Most of these	climate	change activists are hypocrites. Fake science has ruined environmentalism.
going to pay for that? Those who benefit financially from	climate	change enforcement—are the nations most likely to push
of agricultural – most notably; modern farming's effect on the	climate.	fossil fuels are indeed a large part of the
US as The US Democratic, the UK Democratic? "There is	climate	change ,there is more Co2 in the air , & yes
everyone is healthy and happy—perhaps then we can aptly address	climate	change." there is more money in pollution. "take money
the cold is awful the rest I care nothing about	Climate	change agenda is one hundred percent fake or fraud
this video. Read it and learn about "Climate Mao" and "	Climate	Behemoth". "AGW is a myth. It was debunked years

To answer RQ2, the verbs (help, do) have been checked in the word list tool to find roles and identify actors. In the Material process, the participants are:

- Actor—the one performing the action
- Goal—that which is affected by the action (here in this study the climate)

The concordance lines of the interactions associated with these two verbs as illustrated in Table 2. Reveal some actors that play a role in climate change (e.g. government, Conservatives, politics, companies, mankind) that communicators think are responsible for the crisis or for finding solutions. For example, the sentence below shows the roles:

Actor Material Goal

Politicians cannot control global climate change.

–**Terminate Pollution!** This sentence is part of the speech of the influencer actor Arnold and it has been repeated by the interlocutors in their comments. This reflects the powerful effect of the interviewee on the audience. The implied subject of the imperative sentence puts responsibility on the audience and everyone. The verb ‘terminate’ is related to the material process and this invites tangible immediate action. Another example:

–**The Terminator star turned into Captain Planet.**

The movie star has been likened to an American animated environmentalist superhero. Thus, he plays an active influential role according to the massive audience. A hero who makes changes to the environment.

Table 2. The concordance lines of the verbs (help, do).

Such a plan alone will solve nothing. It will only	help	the international organizations to justify their own existence. They
actually represents a dramatic increase in energy. This would also	help	to explain why in the middle of winter if
against research that is designed to make discoveries that might	help	to find environmentally responsible solutions to man made problems
will think we're nuts. I've been looking for	help	to recover my lost account. All thanks to King
there is no such thing as man-made climate change	Help	us they already do!
The companies of corporate greed. Taxation will not	help.	And no, your electric car is not saving the
This idiot is just spewing bovine fesses "Planet Earth: Please	help.	I've had a human infestation problem for a
still be here when we are gone. Politics can not	help.	It will continue to cater to those it answers
who needs to change, but the companies. We NEED to	help.	and we will, but we are not who we
and pollute the,,, agriculture lands to these people are to	help	them live with respect and DIGNITY it is quiet

is on YouTube and the government is not going to	do	nothing about because the LOBBYISTS IN WASHINGTON DC own
electricity, electric cars are useless and damage the environment, so	do	solar panels and wind turbines, the people constantly bleating
alternative energy We need to do this, we need to	do	that, blah blah blah. Been warning us for many
the Economist editor's sideburns caught me off guard, I	do	think he was able to explain the climate situation
to constant resistance from Conservatives in the Senate.) "I really	do	think we should look into Geothermal Energy for electricity.
the BBC congratulates for providing alternative energy We need to	do	this, we need to do that, blah blah blah
of natural cycle and there's nothing we can actually	do	to stop these cycles. The world is now facing
feel the darkness closing in. Much stronger than most people	do,	A darkness spreading through all towns Not stopping even
but we need this ...now. thanks to Elon we can	DO	IT!!! Your minds are getting too hot, so stop
cannot and will not be changed by anything mankind can	do.	I'm sorry to tell you that but you
is about to start within the next 15years. Mankind Can	do	Nothing What so Every regarding whether control sort Term 3-5
basically ask the spongebob magic clam shell. What should we	do?	Nothing. Literally nothing, no work, just stop doing anything.

To answer the last RQ3, there is a need to search for the keyword 'feel' in order to identify attitudes based on the feelings of the audience related to the CC. The results in the figure show the attitude of the interlocutors. An example from the concordance line 'We can feel and see the changes in our earth. Wake up!' It is clear that the attitude in this sentence is a provocative tone. It tries to bring collective attention to this global issue by using the pronoun 'we' who do not only feel but also see the damaging effect of the environmental issue. Thus, the interlocutor in the above sentence registered a strong alarming attitude to affect others to make some positive change. This attitude is created not only through using the perceptual verb 'feel' but also other verbs such as 'see' and 'wake up'.

Figure 3.

The KWIC attached to the node 'feel'

	File	Left Context	Hit	Right Context
1	Climate change...	ok? Always say 'yes' to renewable energy! We can	feel	and see the changes in our earth. Wake up!
2	Climate change...	ok? Always say 'yes' to renewable energy! We can	feel	and see the changes in our earth. Wake up!
3	Climate change...	winter every year and this makes us impossible to	feel	the climate change. Can you believe 720mm of rain
4	Climate change...	by doctors told, If the vaccine came too late. I	feel	the darkness closing in, Much stronger than most
5	Climate change...	says that people will ignore you if you make them	feel	afraid or angry. We need to remind people that
6	Climate change...	ce of the climate every month makes us unable to	feel	climate change. "Climate change invented 1968. T
7	Climate change...	ple lose access to their resources and are made to	feel	guilty, seems like the truth without those dang fac
8	Climate change...	rain and snow and all the fun stuff. Maine will	feel	like Jamaica all year round, and Jamaica will feel
9	Climate change...	I feel like Jamaica all year round, and Jamaica will	feel	like, well, Jamaica on the warm day. It's
10	Climate change...	the weather sunny, but not. It didn't look or	feel	right. The sun gives needed elemental energy to b
11	Climate change...	ockholm syndrome. Ask yourself does any of this	feel	right? What is your intuition telling you? Should ki

5. Conclusion

The paper focused on social interactions on selected videos posted on youtube. Gender and other social factors are excluded from the aims of the study. The videos tackled climate change factors and expected dangers that resulted from this disaster. Thus, the study examined the views and the results showed that the exchanges about this emergent topic are unexpected in terms of seriousness and immediate attention. In other words, the audience seem careless and have cynical views in contrast to what is expected. The second aim of the study is to locate or identify roles that the people or the interlocutor think lead to the disaster. The corpus analysis helps in highlighting such roles in addition to the qualitative part represented by the SFG analysis and verb process types. For example, major agent roles are identified (factories, politicians, government, corruption ...etc). The final aim of the paper is to examine attitude, which shows that through certain linguistic choices, the audiences generally have a negative attitude toward the global issue.

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