

Influence of Climate Change-Related Media on Eco-Emotions and Willingness for Pro-Environmental Action: A Content Dependent Analysis of Videos

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Abstract: *Eco-emotions arise when individuals confront climate change. Previous research examined how eco-emotions lead to environmentally friendly behaviors. Our study focuses on post-video-eco-actions following exposure to various levels of eco-emotion, assessed through online surveys. Results indicate that viewers of animal victim videos exhibited higher levels of eco-anger and eco-anxiety compared to those who were exposed to human victim videos. Additionally, the animal victim video viewers displayed a higher level of willingness to engage in pro-environmental behaviors than the human victim video viewers. Thus, our study underscores climate change media's importance, emphasizing animal victim-related videos' potent impact on emotions and eco-responsibility.*

Keywords: Climate Change, Eco Emotions, Environment

1. Literature Survey

Climate change stands as one of today's most pressing issues. face today. A nationwide survey conducted by the Commonwealth Fund in 2023 revealed that 84 percent of individuals aged 16 to 25 expressed at least moderate concern about climate change. Half of them (45%) reported that their climate change-related worries negatively impacted their daily lives. An unconventional concern arises from the mental well-being of many people, as climate change refers to long-term alterations in global or regional weather patterns primarily driven by human activities (Ágoston et al., 2022; Maran & Begotti, 2021; Sabherwal et al., 2021). When individuals encounter this information through various mediums, such as videos or speeches, they often feel a specific emotional response that motivates them to take immediate action. This phenomenon is called eco-emotions, which are triggered by exposure to the severity of climate change (Loll et al., 2023). These issues have gained greater significance in 2023, as the era of global warming has reached a critical stage.

Primarily, three types of eco-emotions have been extensively discussed: eco-anger, eco-anxiety, and eco-depression. For example, Stanley et al., (2021) explored how these negative eco-emotions impact mental well-being and climate change related actions. They collected data from Australians who perceive climate change is an imminent threat via online surveys. Their findings revealed that while eco-anxiety and eco-depression had adverse effects on mental health, eco-anger is associated with lower negative physiological states such as depression, anxiety, and stress. This underscores the importance of considering negative eco-emotions individually and collectively, highlighting that eco-anger uniquely promotes both personal and collective pro-climate behaviors. In essence, some emotions activate action while others hinder it. Depression, for instance, deactivates action, reducing the likelihood that individuals experiencing eco-depression will take steps to address climate-related issues. On the other hand, anger and anxiety activate action, with

anxiety prompting avoidance of threats and anger driving an approach-oriented response.

Similarly, Agoston et al. (2022) studied three subtypes of eco-emotions: eco-anxiety, eco-guilt, and eco-grief. They examined the adaptiveness or mal adaptiveness of relevant behaviors and coping mechanisms associated with these emotions. They employed qualitative methods, conducting interviews with individuals sensitive to climate change. Through semi-structured interviews, they identified meaningful themes linking specific eco-emotions to eco-friendly actions and coping mechanisms. However, the study has limitations, including the potential influence of interviewers on interviewees' eco-guilt.

Beyond eco-emotion findings, another body of research has explored how media can impact eco emotions (Coffey et al., 2021; Loll et al., 2023). According to Loll et al.'s study (2023), climate change-related media content can evoke various emotional responses, with primary focus on eco-anxiety. They also measured neuroticism and assessed eco-anxiety levels based on climate change-related media types (e.g., newspapers, radio, and video) in pretests and posttests. The study found that media interventions increased eco-anxiety, with neuroticism significantly affecting the difference between pre and post eco-anxiety. However, no significant differences were observed in the types of media influencing eco-anxiety.

Importantly, this study aims to investigate the effect of climate change-related media on eco-emotions and the willingness to pro-environmental actions. Their study examines two types of media content: videos featuring animal victims and videos featuring human victims. We hypothesize that the emotional appeal of the media, whether it shows animal or human victims, will influence viewers to take more action. As noted by Loll et al. (2023), such content can evoke a variety of emotional responses, including anger, sadness, despair, and anxiety. Agoston et al. (2022) also stated that this can primarily lead to two

emotions, anxiety and anger, which in turn prompt increased action in response to the media content.

2. Method

2.1 Participants

Seventy-one participants were recruited for two online studies conducted via the SurveyMonkey.com survey platform. They were randomly assigned to each study, with thirty-five participants in Study 1 and 36 in Study 2, as determined by the SurveyMonkey algorithm. We specifically targeted participants from the United States, and overall, there was a balanced representation of gender, with 57% of the participants being male. The mean age of the participants was 48.83, with a standard deviation of 19.19. All participants provided their consent for the use of their information in the survey.

2.2 Procedure

Two online surveys were conducted using Survey Monkey, and the participants were provided with incentives for their participation. The first survey aimed to determine the objective levels of eco-emotions and the content types of videos used in the primary study. Six videos related to climate change were collected from various platforms, including YouTube and TED, with the links and descriptions provided in the Appendix.

All videos were under one minute in duration and presented information on climate change and its impact on animal populations. Survey respondents were required to watch each video in its entirety and provide a one-sentence summary of their comprehension (e.g., "Please watch this video to the end and provide a brief summary to confirm that you have viewed it"). Subsequently, participants were asked to rate the relevance of the video to climate-change on a 7-point Likert scale (1= Not at all, 4 = Somewhat, and 7 = Strongly). They were also asked to rate their levels of anger, anxiety, and depression.

The second online survey investigated how eco-emotions varied based on individual differences and whether participants took actions to address these emotions. The videos depicted individual harm to the environment, and participants indicated how these videos influenced their views on the ecosystem. Participants were divided into two groups: one group witnessed direct impacts on the

ecosystem, while the other group heard from victims of climate change who shared their experiences. All participants provided information about their age, gender, occupation, interest in climate change, and their stance on preventing climate change. To assess individual differences, the Big Five Personality Test was employed to measure neuroticism levels. Each group then viewed two distinct 30-second clips and summarized them in one sentence each. Subsequently, participants rated their levels of anger and anxiety on a scale from 1 to 100. They also indicated the extent to which the videos motivated action on climate change, and the results were used to measure levels of eco-anxiety.

2.3 Measures

- 1) **Eco-emotions:** Consistent with previous studies (e.g., Stanley et al., 2021), respondents assessed the extent to which climate change elicited feelings of eco-anger, eco-anxiety and eco-depression. This assessment was conducted using a 7-point Likert scale in Study 1 or sliding scales ranging from 0 to 100 in Study 2.
- 2) **Neuroticism:** *To estimate the level of neuroticism, I modified the questions to align with the neuroticism dimension of the Big Five Personality test (McCrae & Costa, 1997).*
- 3) **Pro-environmental Behaviors:** Respondents were requested to assess their willingness to engage in a series of behaviors on a scale from 0 (never) to 100 (at every opportunity). The questions were categorized into two distinct types: the first set comprised eight items related to individual actions (e.g., recycling and composting), while the second set included eight items focusing on collective actions (e.g., protesting).
- 4) **Eco-anxiety:** To measure the degree of eco-anger, I employed a questionnaire based on previous studies (Clayton & Karazsia, 2020; Loll et al., 2023). The measurement scale comprised 13 questions, each intended to prompt respondents to reflect on their experience and overall reactions to climate change. A 7-point Likert scale was utilized, ranging from "strongly agree" to "strongly disagree."

3. Result and Discussion

2.1. Study 1

Estimation of video content

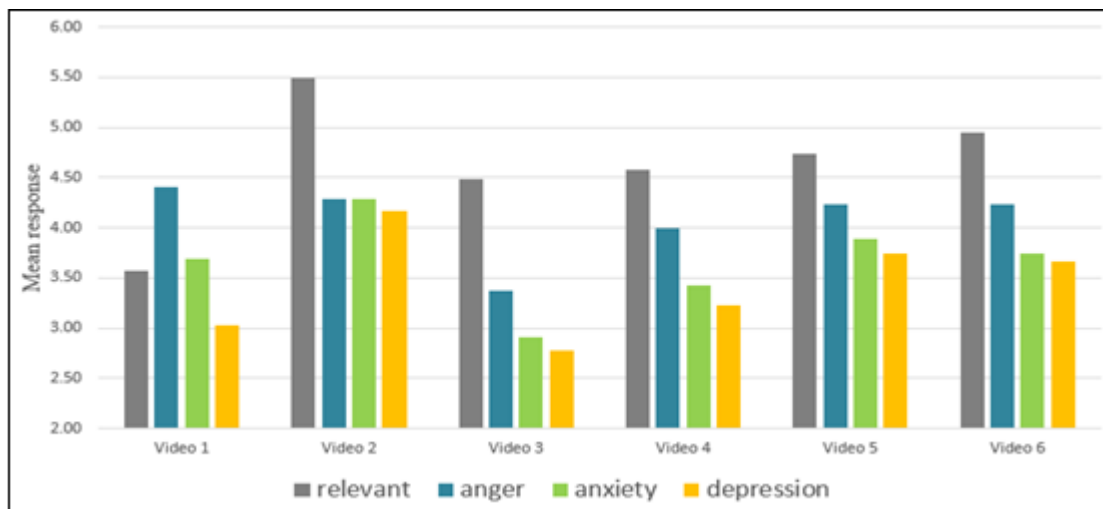


Figure 1: Result of Study 1 as a function of means of relevance and eco-emotion for each video

Table 1: Means of relevance and eco-emotion for each video.

N = 35	Video 1	Video 2	Video 3	Video 4	Video 5	Video 6
Relevance	3.57	5.49	4.49	4.57	4.74	4.94
Eco-anger	4.40	4.29	3.37	4.00	4.23	4.23
Eco-anxiety	3.69	4.29	2.91	3.43	3.89	3.74
Eco-depression	3.03	4.17	2.77	3.23	3.74	3.66

As shown in Table 1, video 1 exhibited the lowest level of relevance to climate change (M = 3.57). This is the case due to absence of scenes depicting riots or direct connections to the causes or consequences of climate change or ecosystem degradation. Consequently, this video was excluded from the second study. Furthermore, when examining the average data concerning eco-emotions, Video 3 recorded the lowest mean (M = 3.29). This is probably due to the portrayal of graduates advocating for climate change riots, which may

not have resonated as strongly with participants compared to the other videos. As a result, this video was also taken out from the second survey.

2.2. Study 2

Examination of the effect of video content on eco-emotion and behavior

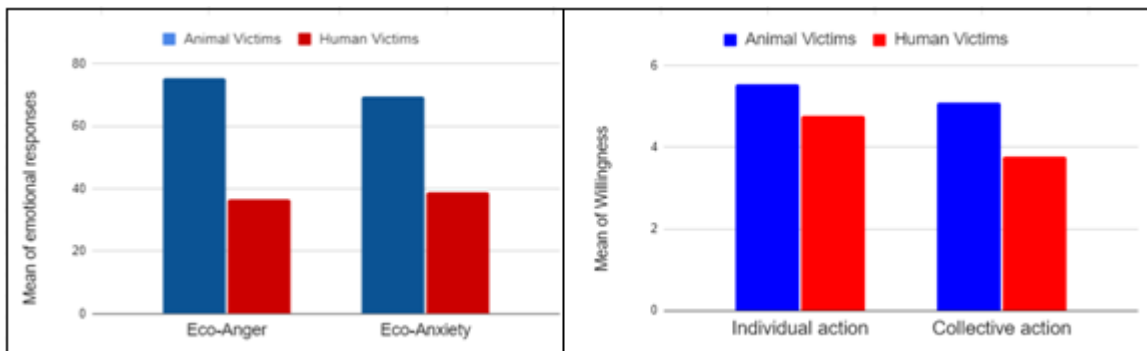


Figure 2: Result of Study 2

Table 2: Response averages for eco-emotions and pro-environmental action

	Eco-Anger	Eco-Anxiety	Individual action	Collective action
Animal victim group	75.28	69.59	5.53	5.09
Human victim group	36.43	38.87	4.76	3.78

Independent Samples T-Test				
	t	df	p	Cohen's d
MeanVsAg	4.512	30	< .001 ^a	1.595
MeanVsAx	4.347	30	< .001 ^a	1.537
MeanIndiAct	1.816	30	0.079	0.642
MeanColAct	2.805	30	0.009	0.992
MeanAllAct	2.611	30	0.014	0.923
MeanEcoAx	0.359	30	0.722	0.127
NeuMean	-0.280	30	0.782	-0.099

Note. Student's t-test.
^a Levene's test is significant ($p < .05$), suggesting a violation of the equal variance assumption

Figure 3: Result of t-test for responses for eco-emotions and pro-environmental action

In study 2, the video content was categorized into “animal victim” and “human victim.” Subsequently, the average levels of eco-emotions were calculated. As depicted in Figure 2, the information related to the animal suffering yielded higher levels of anger ($M = 75.28$) and an even pronounced anxiety ($M = 36.43$). This difference was statistically significant, as indicated in Table 2. This underscores the notion that individuals are more emotionally affected when they witness harm to the environment or animals caused by human actions, as evidenced by heightened eco-anxiety and anger experienced.

Furthermore, these emotions were reflected in pro-environmental actions. In both categories of pro-environmental behaviors, individuals who viewed animal victim videos showed greater willingness to engage in pro-environmental activities ($M = 5.53$ for individual action and $M = 5.09$ for collective action). Thus, the results imply that people feel not only experience heightened eco-emotions when exposed to animal victim content but also exhibit a stronger inclination to take action.

4. Conclusion

Significantly, the implication of the current study suggests that the media should employ video content featuring victims of animal and ecosystem, such as endangered animals or declining species. While eco-anger and eco-anxiety are negative emotions, they can serve as potent motivators when individuals are not conscientious about our environment. These negative reactions can rekindle our sense of responsibility for preserving our ecosystem. Therefore, as one of the most important roles of media, our society has the responsibility of safeguarding our environment, thereby proactively mitigating the potential consequences of climate changes related disasters.

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Appendix

Link and Scripts of videos

Video 01

<https://youtu.be/VaCt95foM1w>

My name is Issa Yasin Mbwani, I come from Iguluba Isman village in Malenga Makali ward. The challenge of our village, especially the first challenge, is water. I feel even

you have seen. The second challenge is like a desert. The grazing area has become smaller. When you come to look especially at the agriculture side the rains are very disturbing to our village and to the whole ward... So I would like to say if you have any support I would like to ask you to help us and cooperate... In the face of this challenge on the part of my fellow youth I advise you in general to fight, and focus on asking our superiors to do their best to come and help us.

Video 02

https://youtu.be/Ij_4hOolSGk

The first time I experienced heartbreak was when I sat glued to my computer screen staring at mass dolphin hunts that turned the shoreline red. Staring as million-year-old forests were bulldozed to produce big macs. Staring as all gore projected graphs that showed how quickly we were devouring the earth and how good we were at pretending otherwise. The second time I experienced heartbreak was in November of 2019 as I watched my country go up in flames as one billion animals were incinerated by the inferno as friends tried to rescue their homes poised on tin roofs armed with hoses until the smoke and embers clung to their clothes. I felt despair and grief.

Video 03

https://youtu.be/6tW4_f47HAg

May as Mental Health Awareness Month in nearly one in five U.S adults live with a mental illness at five we talked about how natural disasters can increase depression but whether you have lived through a disaster or not even negative climate impacts on others can contribute to widespread climate anxiety with 70 percent of Americans feeling at least somewhat worried about global warming our Dr Frank McGeorge explains how we can help combat that it's normal to feel concerned about climate change and even have some anxiety here are some suggestions for managing it educate yourself knowledge can provide a sense of empowerment Channel your concerns into constructive action that helps Alleviate anxiety by providing a sense of purpose and contribution talk about your concern with others and find support where necessary also be sure to take care of yourself taking care of your physical and mental health provides a buffer against anxiety now I have to mention the media while it is important to stay informed you should be mindful of your media consumption and focus on reliable

Video 04

<https://youtu.be/6T3Fh7cVII4>

Burning forests. Scorching heat droughts the melting Arctic. Extreme weather has worried most people on planet Earth and the most frightened of all are younger generations. The ones who have their whole lives to see dramatic forecasts unfold. The study published in the *Lancet* shows people aged 16 to 25 are now increasingly anxious. Among their most common beliefs the future is frightening. Humanity is doomed 4 out of ten. They hesitate to even have children. The study warns that all the spheres could have serious consequences on this generation's mental health. It says anxiety is exacerbated by the fact governments have failed to deliver.

Video 5

<https://youtu.be/vkwwj7qiauo>

Human development grows at an unsustainable rate. In the last century carbon emissions, use of natural resources, and environmental pollution have skyrocketed the result. The result is melting of the ice caps, torrential rains and flooding. All this causes significant reductions in available fresh water and a dramatic loss of the planet's biodiversity. For the Earth's floor and fauna, this translates to potentially 150 species extinction every day. Many animals are much more sensitive than people to changes in humidity or temperature, meaning more and more.

species are struggling to adapt to a changing planet. One of the largest bat species for examples are unable to adapt to high temperatures leading to more than one hundred thousand bats dying in a single Australian heat wave in 2014. Many animals are forced to change them

lifestyle affecting activity patterns, migration habits, feeding, or even their habitat. Some white storks in Spain are no longer migrating South, as increasingly mild Winters in the Iberian Peninsula cause them to stay.

Video 6

<https://youtu.be/10ixqrph-JA>

Lately, I've been studying a phenomenon that's just one example of emotional hardships.

that we're seeing. And it comes in the form of a question that a significant number of people in my generation are struggling to answer. That being: Should I have a child in the age of climate change? After all, any child born today will have to live in a world where hurricanes, flooding, wildfires and what we used to call natural disasters have become commonplace. The hottest 20 years on record occurred within the last 22. The UN expects that two-thirds of the global population may face water shortages only six years from now. The World Bank predicts that by 2050, there's going to be 140 million climate refugees in sub-Saharan Africa, Latin America and South Asia. And other estimates put that number at over one billion. Mass migrations and resource scarcity increase the risk for violence, war and political instability. The UN just reported that we are pushing up to a million species to extinction, many within decades, and our emissions are still increasing, even after the Paris Agreement.

Author Profile

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