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UNDERSTANDING STUDENT PERCEPTIONS OF CLIMATE CHANGE THROUGH VIDEO-BASED EDUCATION: A QUALITATIVE ANALYSIS.

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Abstract

Exploring undergraduate students' perceptions and behavioural changes following a video-based educational intervention on climate change is a novel concept. Using qualitative thematic analysis, this study uncovered key insights into students' evolving attitudes and engagement with sustainable practices. A thematic analysis was conducted using NVivo software, and a word cloud was used to visualize recurring themes.

The study identified three primary themes: increased awareness, behavioural change, and empowerment and advocacy. Students demonstrated a more comprehensive understanding of human-induced climate change,

with post-intervention responses showing greater recognition of its causes and consequences. Participants also expressed increased motivation to adopt sustainable habits, such as reducing plastic use and participating in advocacy efforts. Limitations of the study included potential response bias, short-term evaluation, and a geographically limited sample. Findings emphasize the need for interactive and experiential learning methodologies to cultivate climate-conscious behaviours among youth. The findings reinforce the effectiveness of video-based education in fostering environmental awareness and advocacy, suggesting its potential integration into formal education systems.

Keywords: *Climate education, Qualitative research, Video-based learning.*
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INTRODUCTION

Climate change education must extend beyond theoretical knowledge to cultivate behavioural transformation. While previous studies have highlighted the efficacy of video-based interventions in increasing climate awareness, few have explored their impact on students' subjective experiences and perceptions. This qualitative study delves into the narratives of undergraduate students in Belagavi, India, analyzing their perspectives on climate change before and after the intervention.

Climate change is recognized as one of the most pressing global challenges.[1] Educational interventions, particularly those incorporating audiovisual media, have been shown to enhance engagement and knowledge retention. [2,3] However, there is a gap in research exploring students' reflections and attitudes following such interventions [4], especially about the growing crisis that is climate change. By analyzing students' responses, this study provides insight into the transformative potential of video-based climate education. The study aims to bridge the gap between climate change knowledge and sustainable behavioural practices by assessing changes in students' perceptions post-intervention.

METHODOLOGY

A qualitative exploratory study employing open-ended survey responses was used among undergraduate students (N=320) from four colleges in Belagavi, Karnataka, India. Data Collection was done by employing pre-test and post-test open-ended survey questions. Anonymous written responses to the questions "Can you think of any eco-friendly activities you have engaged yourself with in the past year?" and "Do you have any suggestions on any innovative practices or attitudes that can be adopted for the betterment of the environment?" were analyzed for recurring themes. Once the data saturation was achieved, the responses were analyzed. A participant coding system was used to ensure anonymity while maintaining the ability to track individual response changes. An analytical approach with thematic analysis using NVivo software [5] was used to code and categorize participant responses. Inductive coding was done to identify emerging patterns, followed by deductive validation against existing climate change literature. Finally, a word cloud visualization for frequency-based thematic representation was used to infer the common words used in the participant responses.

Participant Coding: Each participant was assigned a unique identifier (e.g., P12 for Participant 12), followed by a suffix indicating the stage of data collection.

T1 (Time 1) refers to responses collected during the pre-test phase.

T2 (Time 2) refers to responses collected during the post-test phase. This coding scheme ensured anonymity while preserving transparency in response tracking. Direct quotes from participants were labelled accordingly, ensuring

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reliability in data interpretation.

RESULTS

The sociodemographic characteristics of the study population are given in Table 1.

Table 1. Characteristics of study participants (n=320)

Characteristic	Category/Statistic	Frequency (%) / Value
Age (years)	Mean ± SD	20.54 ± 1.75
Gender	Female	177 (55.31%)
	Male	143 (44.69%)
Degree Course	Bachelor of Technology (B.Tech)	110 (34.3%)
	Bachelor of Computer Applications (BCA)	90 (28.1%)
	Bachelor of Commerce (B.Com)	81 (25.4%)
	Bachelor of Legislative Law (LLB)	39 (12.2%)
Residence	Urban	244 (76.25%)
	Rural	76 (23.75%)
Monthly Income (₹)	Mean ± SD	13,678.13 ± 9,146.98
Per Capita Income (₹)	Mean ± SD	2,860.89 ± 2,248.70

From the qualitative analysis of the responses from the study participants after data saturation was achieved, three dominant themes emerged:

Theme 1: Increased Awareness

Pre-test: Many students had a limited understanding of anthropogenic climate change, with some attributing it solely to natural phenomena.

P34-T1: "I thought climate change was just part of nature's cycle."

P56-T1: "I knew about global warming, but I didn't think humans played such a big role."

Post-test: Students articulated clearer connections between human activities and global warming.

P102-T2: "I never realized how much pollution from industries contributes to global warming until I watched the video."

P76-T2: "I now see how cutting trees in my city is affecting our rainfall."

Theme 2: Behavioral Change

Pre-test: Sustainable habits were largely absent, and many participants admitted to not actively considering their environmental impact.

P19-T1: "I don't think about how my actions affect the climate."

P72-T1: "I use plastic bags because they are convenient."

Post-test: A significant number of students committed to adopting sustainable habits, such as reducing plastic use and conserving energy.

P19-T2: "I have stopped using plastic bottles and now carry a reusable one."

P88-T2: "I told my younger siblings about climate change and how we can help by recycling."

P150-T2: "I joined a local clean-up drive after watching the video."

Theme 3: Empowerment and Advocacy

Pre-test: Many students felt powerless in addressing climate change.

P65-T1: "What difference can one person make? Governments should be responsible."

Post-test: Students expressed increased confidence in their ability to contribute to environmental solutions.

P143-T2: "Even small changes like switching off lights and using public transport can help!"

P98-T2: "I believe strict environmental laws are needed, and we should hold industries accountable."

Word Cloud Analysis: A word cloud was generated to visualize the most frequently occurring terms in participant responses. Prominent words included "pollution," "awareness," "responsibility," "change," "plastic," and "action." This indicates a shift in student focus from general climate knowledge to actionable solutions. The presence of words like "government" and "policy" suggests an increased recognition of the systemic nature of climate issues.

The pre-test word cloud primarily featured words like "confusion," "unsure," and "natural causes," indicating a lack of clarity on the subject. In contrast, the post-test word cloud saw a dominance of terms like "sustainability," "reduce waste," and "renewable energy," suggesting a shift towards actionable climate solutions.

DISCUSSION

Findings underscore the transformative power of multimedia education in shaping students' perceptions and behaviors. The intervention not only enhanced knowledge

but also empowered participants to take actionable steps towards sustainability. Compared to conventional lecture-based teaching, video-based learning proved more engaging and memorable. When compared to studies conducted in Canada [6] and Ghana [7], those studies also demonstrated improvements in students' environmental knowledge following multimedia-based educational interventions. A systematic review [8] found that experiential and interactive learning increased long-term retention of environmental concepts. Findings from a 2022 study in Australia [9] showed that integrating technology-driven tools, such as videos, improved students' engagement and conceptual understanding of climate change.

Despite the unique nature of this study, it was not without its limitations:

Self-reported data bias, wherein participants' responses might have been influenced by social desirability, was a possibility. Also, the study only assessed short-term changes; long-term retention and behavioural sustainability remain unknown. The study focused on undergraduate students from specific colleges, which could be a factor in limiting generalizability.

CONCLUSION

By fostering deeper emotional and intellectual engagement, video-based education can serve as a catalyst for long-term behavioural change. Future initiatives should incorporate interactive storytelling and community-driven climate projects to amplify impact. Further research should explore the longevity of these behavioural shifts and their real-world application.

This study supports the integration of multimedia education into university curricula to improve climate literacy. By fostering proactive attitudes and actions, such interventions can contribute to broader sustainability efforts on both local and global scales.

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