

ECO-CONSCIOUS FUTURES: WHAT FILIPINO GRADE 8 STUDENTS THINK ABOUT CLIMATE CHANGE

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ABSTRACT – Climate change is a critical global challenge, and young learners play a crucial role in future mitigation and adaptation efforts. This study assessed the knowledge, awareness, and attitudes of Grade 8 Filipino students regarding climate change, employing a descriptive correlational research design. A survey was administered to 96 students in a public high school in Region IVA, Philippines, measuring general environmental awareness (GEA), knowledge of climate change (KCC), awareness of climate change (ACC), and attitudes toward climate change (ATCC) on a 4-point Likert scale. Spearman rank correlation tests were conducted to analyze relationships among these variables. Findings revealed that students demonstrated high environmental awareness, particularly regarding issues directly affecting them, such as rising temperatures. However, their knowledge of climate change was inconsistent, and their awareness was influenced more by personal experiences than by a comprehensive scientific understanding. The correlations between GEA and KCC, GEA and ACC, and GEA and ATCC were generally weak to moderate, with only a few significant relationships. This suggests that general environmental awareness does not strongly predict climate change knowledge or attitudes, underscoring the need for targeted climate education. The study emphasizes the importance of integrating digital platforms into climate education to align with students' preferred information sources and enhance their engagement. Strengthening curriculum content on climate mitigation strategies and sustainable practices is also recommended. Educators and policymakers can better equip students for informed climate action by deepening their knowledge and encouraging proactive attitudes.

Keywords: climate change, climate change education, environmental awareness

INTRODUCTION

Knowledge, awareness, and attitudes toward climate change are vital elements that shape how individuals respond to the global climate crisis. Knowledge of climate change enables students to better assess their daily practices, adapt to the effects of global warming, and make environmentally responsible decisions (Asilsoy et al., 2017). Among the youth, these elements influence their ability to understand environmental issues, assess risks, and take informed action. Caisip and Espinosa (2022) reported that youth in vulnerable urban communities have moderate awareness of climate change's impacts on health, agriculture, and water, but are less aware of its effects on infrastructure and forestry. Pael (2022) found that while senior high school students had average knowledge and generally positive behavior toward

climate change actions, their deeper scientific understanding was limited. As the impacts of climate change intensify, the role of young people becomes more prominent, given that their behaviors and lifestyle choices will significantly determine future emissions and adaptation outcomes (Pickering et al., 2020). Education is instrumental in cultivating knowledge and promoting awareness, which can ultimately transform students' attitudes and behaviors toward more sustainable practices (Khan, 2022). Early engagement in climate-related discussions increases the likelihood of students taking action and influencing others within their communities (Rooney-Varga et al., 2014).

Several studies have investigated students' understanding and perceptions of climate change. Individual experiences with the direct effects of climate change influence their perception of risk, creating diverse understandings of the issue (Tapsuwan and Rongrongmuang, 2015). Factors such as prior experiences, environmental awareness, and proximity to climate risks also influence how students perceive the threat of climate change. In Canada, Plotnikoff et al. (2004) found that awareness of climate change was moderate, while Adams (2001) discovered that students had limited scientific knowledge of the issue. Similarly, studies from Turkey (Kahraman et al., 2008; Oluk and Oluk, 2010) revealed that students often held misconceptions about the causes and consequences of climate change. In the Philippine context, research has reported comparable gaps in climate literacy. Aruta (2022) showed that Filipino youth demonstrated relatively low levels of climate change knowledge efficacy, which limited their capacity to translate awareness into concrete pro-environmental behaviors. Likewise, Simona, Pakingan, and Arutab (2022) highlighted that climate change anxiety among Filipino adolescents was influenced by limited access to accurate climate education and resources. These findings underscore the need for enhanced climate education to equip young learners with accurate knowledge and a deeper understanding of the challenges ahead. Moreover, perceptions of climate change risk are shaped not only by educational exposure but also by students' personal beliefs and lived experiences (Prasad et al., 2021). These findings highlight persistent gaps in climate literacy across diverse contexts, indicating a need to strengthen environmental education globally.

Despite the inclusion of climate change topics in the Philippine K-12 curriculum, particularly in Science 7, there remains a critical gap in understanding how this formal education translates into students' knowledge retention, awareness of consequences, and actionable attitudes toward climate change. While previous studies (e.g., Garcia et al., 2020) have examined environmental awareness among students, few have specifically investigated the interrelationships between general environmental awareness and the three dimensions of climate change engagement—KCC, ACC, and ATCC—among early high school students in the Philippine context. Most existing research focuses on either awareness or attitudes in isolation, neglecting the correlation and potential reinforcement of these factors following classroom instruction. Furthermore, limited studies have utilized correlational analysis to determine whether foundational environmental awareness serves as a predictor of deeper climate literacy or pro-environmental attitudes in developing nations, where climate education resources may be scarce. Similarly, limited research on climate change involving young Filipino students, assessing the knowledge, awareness, and attitudes of Grade 8 learners is essential. These students represent future leaders who must take action, as they are vulnerable to its long-term effects (Pickering et al., 2020).

This study focuses on Grade 8 students who have already been introduced to climate change in their Grade 7 curriculum. These learners are in a formative stage where knowledge, awareness, and attitudes can be significantly shaped. Understanding how these dimensions interrelate will inform more effective educational strategies. The insights from this study can also help educators and policymakers strengthen the science and values curricula and design student-centered climate education programs.

Specifically, this study aims to answer the following research questions:

1. What are the Grade 8 students' GEA, KCC, ACC, and ATCC levels?
2. Is there a significant correlation between GEA and KCC, GEA and ACC, and GEA and ATCC?

This study is especially relevant to educators, curriculum developers, school administrators, and policy makers who are in positions to enhance the quality of climate education in the Philippines. Findings from this research can support the integration of more comprehensive, accurate, and age-appropriate climate content in the basic education curriculum. Additionally, it can benefit non-formal education initiatives and youth organizations advocating for environmental awareness by offering empirical data on students' current levels of understanding and concern. Ultimately, this study contributes to the broader vision of preparing Filipino students to become informed, responsible, and resilient citizens in the face of climate challenges.

MATERIALS AND METHODS

Context of Study and Research Design

The study was conducted in a public high school in Region IVA (CALABARZON), Philippines. A total of ninety-six Grade 8 junior high school students from four different class sections participated. They had previously studied climate change in their Science 7 curriculum, which covered global warming and its effects. The study employed a descriptive correlational research design to assess the knowledge, awareness, and attitudes of Filipino Grade 8 students regarding climate change, as well as to examine the relationship between GEA and three dimensions of climate change response: KCC, ACC, and ATCC.

The Research Instrument

Quantitative data were gathered using a survey questionnaire modified from Christensen & Knezek (2015), allowing for descriptive analysis and examination of the correlations between the variables. The questionnaire consisted of four sections: (1) GEA, (2) KCC, (3) ACC, and (4) ATCC. Responses were measured on a 4-point Likert scale, ranging from "strongly disagree" to "strongly agree." There were twenty-two items in the GEA questions: six items were included in the inquiries between GEA and KCC, fourteen items between GEA and ACC, and seventeen items between GEA and ATCC.

Pilot testing with 60 Grade 8 students from a public high school in Los Baños, Laguna ensured clarity and reliability. Cronbach's alpha confirmed internal consistency ($\alpha > 0.7$ for all scales) at 0.819, which is generally considered acceptable, indicating the items within a scale are measuring the same construct.

Data Collection and Analysis

Data collection was conducted asynchronously in September 2024 through an online survey using Google Forms. Before proceeding with the questionnaire, students were asked to complete an informed consent form, which was embedded in the first section of the survey. The consent form emphasized voluntary participation, the right to withdraw at any time, and the assurance that no personal data would be collected, in compliance with the Data Privacy Act of 2012 (RA 10173). Participation was limited to those who provided informed consent. Responses were automatically collected and securely stored in a password-protected file accessible only to the researchers.

The Spearman rank correlation test was used to assess the relationship between specific variables, with a significance level set at $\alpha = 0.05$. The strength and significance of the relationships were evaluated for each pair of items, specifically between GEA and KCC, ACC, and ATCC. Correlation tests were conducted for these pairs: (1) GEA and KCC, (2) GEA and ACC, and (3) GEA and ATCC, using a standard guide to interpret the strength of the correlations. This methodology was adapted from a previous study by Garcia et al. (2020).

RESULTS AND DISCUSSION

General Environmental Awareness (GEA)

The participants of this study generally demonstrated strong environmental awareness. They demonstrate an understanding of both the personal and national significance of these concerns, as well as the value of natural and cultural resources. Moreover, their awareness of environmental risks and climate impacts, which are most likely shaped by exposure through education and media, suggests that they may be more inclined to develop positive environmental attitudes and engage in sustainability practices or climate action initiatives.

Table 1 summarizes the percentage of students’ responses to this section of the survey.

Table 1. Students’ responses to the Likert scale questionnaire on GEA (N = 96).

Statement	Percentage of Responses			
	Not Aware	Fairly Aware	Moderately Aware	Highly Aware
I consider garbage/plastic pollution, which I had seen/heard/read about, to have the most significant impact on my experience.	1.0	5.2	32.3	61.5
I consider water pollution, which I had seen/heard/read about, to have the most significant impact on my experience.	2.1	12.5	34.4	51.0
I consider air pollution, which I had seen/heard/read about, to have the most significant impact on my experience.	2.1	2.1	27.1	68.8
I consider deforestation and land degradation, which I had seen/heard/read about, to have the most significant impact on my experience.	1.0	11.5	35.4	52.1
I consider the rising heat index, which I had seen/heard/read about, to have the most significant impact on my experience.	0.0	4.2	11.5	84.4
I believe that the environment and natural resources are very important to national development.	0.0	0.0	6.3	93.8
I believe any community is endangered by natural disasters such as typhoons and floods.	1.0	5.2	18.8	75.0
I believe any community is endangered by natural disasters such as volcanic eruptions.	0.0	2.1	18.8	79.2
I believe any community is endangered by natural disasters such as earthquakes.	0.0	3.1	26.0	70.8

Table 1 (Continued). Students' responses to the Likert scale questionnaire on GEA (N = 96).

Statement	Percentage of Responses			
	Not Aware	Fairly Aware	Moderately Aware	Highly Aware
I believe any community is endangered by natural disasters such as El Niño.	1.0	10.4	26.0	62.5
I believe any community is endangered by natural disasters such as La Niña.	1.0	8.3	34.4	56.3
I believe any community is endangered by natural disasters such as coastal erosion.	1.0	18.8	43.8	36.5
I believe any community is endangered by natural disasters such as water shortages.	0.0	4.2	22.9	72.9
I believe that water is important to national development.	0.0	0.0	2.1	97.9
I believe that soil and land are important to national development.	0.0	0.0	7.3	92.7
I believe that the beach and the sea are important to national development.	0.0	5.2	29.2	65.6
I believe that forests are important to national development.	0.0	1.0	12.5	86.5
I believe that wildlife/biodiversity is important to national development.	0.0	1.0	6.3	92.7
I believe that waterfalls are important to national development.	1.0	5.2	45.8	47.9
I believe that cultural heritage is important to national development.	1.0	2.1	18.8	78.7
I believe that education is important to national development.	0.0	0.0	3.1	96.9
I believe that religious teachings are important to national development.	4.2	11.5	40.6	43.8

Several items stand out with particularly high levels of awareness. From Table 1, more than 90% of students reported being highly aware of the importance of water (97.9%), education (96.9%), the environment and natural resources (93.8%), wildlife/biodiversity (92.7%), and soil and land (92.7%). These areas are all significantly affected by climate change: water resources face increasing risks from droughts and shortages, biodiversity is threatened by shifting habitats and species loss, and soil and land are vulnerable to degradation from extreme weather and unsustainable land use. Students' recognition of education as crucial also underscores their awareness of its role in equipping societies with the knowledge and skills needed for climate action. These results indicate that students recognize the essential role of natural resources and knowledge systems in sustaining both human life and national development. The consistently high percentages in these areas strengthen the claim that students are not only knowledgeable about environmental issues but also perceive them as critical drivers of sustainable progress. These findings align with the results reported in Kollmuss & Agyeman (2002), which noted that environmental awareness

forms the basis for the development of environmental values and pro-environmental behavior among learners.

Correlation between GEA and Knowledge of Climate Change (KCC)

Overall, the responses from this section show that students demonstrate a strong foundational knowledge of climate change. A large proportion reported proficient knowledge of the causes (77.6%) and effects (80.6%) of climate change, as well as general familiarity with the issue (74.5%). More than half also indicated that they know how to mitigate its impacts (57.1%) and have access to resources such as books, posters, and online platforms for further learning (55.1%). These findings suggest that students are not only informed about the basic science of climate change but also recognize strategies and resources that could support adaptation and mitigation efforts.

Table 2 summarizes the percentage of students’ responses to this section.

Table 2. Students’ responses to the Likert scale questionnaire on KCC (N = 96).

Statement	Percentage of Responses			
	No Knowledge	Limited Knowledge	Moderate Knowledge	Proficient Knowledge
I know something about climate change.	0.0	3.1	22.4	74.5
I know the causes of climate change.	0.0	0.0	22.4	77.6
I know the effects of climate change.	0.0	0.0	19.4	80.6
I know how to mitigate/reduce the impacts of climate change.	0.0	6.1	36.7	57.1
I have access to various resources (books, internet, brochures, posters, etc.) to learn about climate change.	0.0	13.3	31.6	55.1
I have an interest in pursuing a course and career (job or business) related to addressing climate change.	14.3	52.0	20.4	13.3

While some highly aware students also demonstrated better knowledge of climate change, this pattern was not consistent across most respondents. In Table 2, a notably significant proportion reported limited (52.0%) to no knowledge (14.3%) regarding the pursuit of careers related to climate change. This suggests that although students possess a solid foundational understanding of climate change (as reflected in their high scores on the first four items), such knowledge does not necessarily translate into career-oriented interest or long-term engagement. In other words, students may be informed but lack the intrinsic motivation or vision to act on that knowledge in a more personal or sustained manner. This aligns with findings by Carman et al. (2021), who reported that students’ interest in climate change was indirectly influenced by their knowledge of the topic, mediated by their desire to learn more, personal interest, and perceived importance of the issue. Likewise, Stafford (2025) found that while many undergraduates recognized climate change as a pressing social issue, only about 15% reported that it influenced their career intentions, underscoring the gap between awareness, knowledge, and professional orientation. Together,

these findings suggest that students may be informed yet lack the vision, exposure, or role models to translate their knowledge into sustained engagement or climate-related career paths.

The correlation between GEA and KCC ranges from very weak to moderate ($R = 0.0025$ to 0.3462), with 17.4% of the 132 pairs showing significant correlations. Table 3 summarizes the Spearman rank correlation coefficients (R) and their corresponding significance values between GEA and KCC indicators among 96 respondents.

Table 3. Summary of Spearman rank correlation test results for GEA and KCC ($N = 96$).

Parameter		KCC01	KCC02	KCC03	KCC04	KCC05	KCC06
GEA01	R	0.2484	0.2704	0.1778	0.2650	0.3291	0.0638
	Sig. (2-tailed)	0.0147*	0.0077*	0.0830	0.0091*	0.0011*	0.5368
GEA02	R	0.0779	0.1044	0.0748	0.0638	0.2254	0.0862
	Sig. (2-tailed)	0.4507	0.3114	0.4688	0.5369	0.0272*	0.4035
GEA03	R	0.1990	0.2099	0.2203	0.0433	0.2951	0.1711
	Sig. (2-tailed)	0.0520	0.0401*	0.0310*	0.6750	0.0035*	0.0956
GEA04	R	0.1008	0.1483	0.1376	0.1139	0.2110	0.1614
	Sig. (2-tailed)	0.3284	0.1493	0.1812	0.2693	0.0390*	0.1161
GEA05	R	0.0071	0.1028	0.1533	0.0287	0.2267	0.1079
	Sig. (2-tailed)	0.9450	0.3189	0.1358	0.7817	0.0263*	0.2952
GEA06	R	-0.0579	-0.0384	-0.0203	-0.0638	0.1307	0.0823
	Sig. (2-tailed)	0.5750	0.7103	0.8447	0.5372	0.2044	0.4253
GEA07	R	0.0349	0.1307	0.1267	-0.0374	0.1049	0.1810
	Sig. (2-tailed)	0.7359	0.2042	0.2187	0.7177	0.3090	0.0777
GEA08	R	0.2079	0.0786	0.0602	0.0650	0.0737	0.1488
	Sig. (2-tailed)	0.0421*	0.4463	0.5601	0.5292	0.4755	0.1479
GEA09	R	0.2012	0.1931	0.1430	0.2540	0.2355	0.0563
	Sig. (2-tailed)	0.0493*	0.0594	0.1646	0.0125*	0.0209*	0.5858
GEA10	R	0.1319	0.1089	0.0747	0.0462	0.1142	0.1277
	Sig. (2-tailed)	0.2003	0.2911	0.4693	0.6552	0.2681	0.2150
GEA11	R	0.0540	0.0835	0.0577	0.0517	-0.0732	0.1396
	Sig. (2-tailed)	0.6015	0.4186	0.5769	0.6167	0.4784	0.1751
GEA12	R	0.1722	0.0834	0.2028	0.1169	0.1623	0.1631
	Sig. (2-tailed)	0.0934	0.4194	0.0475*	0.2566	0.1142	0.1124
GEA13	R	0.1144	0.0035	0.1072	0.1056	0.0436	0.0025
	Sig. (2-tailed)	0.2669	0.9733	0.2987	0.3059	0.6731	0.9807
GEA14	R	0.2343	0.2675	0.2936	0.1440	0.1789	0.1424
	Sig. (2-tailed)	0.0216*	0.0084*	0.0037*	0.1615	0.0811	0.1664
GEA15	R	0.2981	0.1331	0.0618	0.3462	0.1571	-0.0450
	Sig. (2-tailed)	0.0032*	0.1962	0.5497	0.0006*	0.1263	0.6631
GEA16	R	0.1026	0.0854	0.0573	0.2237	0.0945	0.2743
	Sig. (2-tailed)	0.3197	0.4078	0.5795	0.0284*	0.3600	0.0068*

Table 3 (Continued). Summary of Spearman rank correlation test results for GEA and KCC (N = 96).

Parameter	KCC01	KCC02	KCC03	KCC04	KCC05	KCC06
GEA17 R	0.1633	0.0709	0.1058	0.1860	-0.0385	0.3094
Sig. (2-tailed)	0.1120	0.4926	0.3050	0.0697	0.7093	0.0022*
GEA18 R	-0.0785	0.0357	0.0597	-0.0221	0.0214	-0.0093
Sig. (2-tailed)	0.4472	0.7296	0.5635	0.8308	0.8359	0.9280
GEA19 R	0.0918	0.1255	0.0688	0.0891	0.1377	0.1921
Sig. (2-tailed)	0.3737	0.2231	0.5051	0.3882	0.1809	0.0608
GEA20 R	-0.1396	-0.0436	-0.0046	-0.0646	0.0418	0.0506
Sig. (2-tailed)	0.1751	0.6735	0.9646	0.5318	0.6856	0.6242
GEA21 R	-0.1061	-0.0979	-0.0892	0.0665	0.1409	-0.0590
Sig. (2-tailed)	0.3037	0.3425	0.3874	0.5197	0.1710	0.5678
GEA22 R	0.1018	0.0073	0.0077	0.0258	-0.1462	0.0533
Sig. (2-tailed)	0.3237	0.9438	0.9408	0.8033	0.1554	0.6058

*At $\alpha = 0.05$, 23 of 132 (17.4 %) pairs are significantly correlated.

At a significance level of $\alpha = 0.05$, 23 out of 132 pairs (17.4%) in Table 3 were found to be significantly correlated, as marked with an asterisk (*). This indicates a generally negligible relationship, suggesting that a higher level of environmental awareness does not necessarily correspond to greater knowledge about climate change. Instead, the relationship appears to be selective, where certain aspects of environmental awareness are meaningfully linked with particular dimensions of climate change knowledge. These findings highlight the need for climate education strategies that explicitly connect general awareness with in-depth, actionable knowledge. Educational interventions should aim to bridge this gap by aligning content with students' lived experiences and contextual realities, thereby fostering a more comprehensive and meaningful understanding of climate issues, as recommended by Monroe et al. (2017).

Correlation between GEA and Awareness of Climate Change (ACC)

Overall, the responses from this section suggest that students are highly aware of climate change as a concept and can readily connect it to observable shifts in weather patterns and extreme events. However, differences emerge in how they access information, with some sources being more influential than others.

Table 4 summarizes the percentage of students' responses to this section.

From Table 4, nearly all respondents expressed awareness of climate change as a concept, with 87.5% strongly agreeing that the Earth's climate is changing. A strong majority also recognized indicators of climate variability, such as more frequent (77.1%) and intense typhoons (76.0%) and hotter days and nights (81.3%). When it comes to media sources, however, responses were divided: traditional outlets like radio (22.9% strongly disagree; 36.5% disagree) and newspapers (24.0% strongly disagree; 37.5% disagree) were not widely used, whereas television (59.4% strongly agree), school settings (89.6% strongly agree), and especially the Internet/social media (85.4% strongly agree) were dominant sources of information. These findings indicate a generational shift in media consumption, with students increasingly relying on digital platforms for information. While this trend highlights the importance of digital media as a powerful tool for enhancing climate awareness, it also reveals a missed opportunity to leverage traditional

media for more comprehensive climate communication. Furthermore, given the vast amount of information online, it is essential to ensure that students' exposure to climate content is accurate, reliable, and complemented by structured learning experiences in formal education settings. This is consistent with Ballew et al. (2019), who emphasized that digital platforms play a crucial role in shaping climate change awareness among young people.

Table 4. Students' responses to the Likert scale questionnaire on ACC (N = 96).

Statement	Percentage of Responses			
	Strongly Disagree	Disagree	Agree	Strongly Agree
I am aware of the term 'climate change'.	0.0	0.0	5.2	94.8
I am aware that the Earth's climate is changing or its weather patterns are changing.	0.0	0.0	12.5	87.5
I have heard about climate change on the radio (local and foreign).	22.9	36.5	20.8	19.8
I have heard about climate change from television (local and foreign).	4.2	10.4	26.0	59.4
I have heard about climate change from movies.	5.2	26.0	34.4	34.4
I have heard about climate change from the Internet/social media.	0.0	1.0	13.5	85.4
I have heard about climate change from newspapers/broadsheets.	24.0	37.5	21.9	16.7
I have heard about climate change in school (classroom or school activities).	0.0	2.1	8.3	89.6
I am aware that there has been either more rain, less rain, or unpredictable rain patterns in recent times.	0.0	2.1	18.8	79.2
I am aware that there have been more typhoons in recent times.	0.0	3.1	19.8	77.1
I am aware that there have been stronger typhoons in recent times.	0.0	3.1	20.8	76.0
I am aware that there have been hotter days/nights in recent times.	1.0	1.0	16.7	81.3
I had personal experiences regarding such weather changes.	2.1	4.2	28.1	65.6
I am aware that the main indicator of weather change is heat.	1.0	2.1	33.3	63.5

The correlation between GEA and ACC ranges from very weak to moderate ($R = 0.0011$ to 0.5548), with 22.7% of the 308 pairs showing significant correlations. Table 5 summarizes the Spearman rank correlation coefficients (R) and their corresponding significance values between GEA and ACC indicators among 96 respondents.

At a significance level of $\alpha = 0.05$, 70 of 308 pairs (22.7 %) in Table 5 were found to be significantly correlated, as marked with an asterisk (*). This moderate association suggests that greater environmental awareness among some students may improve understanding of climate change consequences. However, nearly 80% of correlations were insignificant, indicating that most participants do not see a strong link between general environmental awareness and specific climate impacts. These findings are supported by Lee et al. (2015), who found that general environmental concern often only modestly predicts specific awareness of climate change issues, pointing to the need for targeted integration in educational approaches. The significant correlations highlight opportunities to build on general

Table 5. Summary of Spearman rank correlation test results for GEA and ACC (N = 96).

Parameter	ACC01	ACC02	ACC03	ACC04	ACC05	ACC06	ACC07	ACC08	ACC09	ACC10	ACC11	ACC12	ACC13	ACC14
GEA01 R	0.1728	0.2428	0.1469	0.2335	0.1376	0.0102	0.1312	-0.0758	0.0618	0.1193	0.1577	-0.0432	0.0349	0.1477
Sig. (2-tailed)	0.0923	0.0172*	0.1533	0.0220*	0.1811	0.9217	0.2027	0.4631	0.55	0.2471	0.125	0.6759	0.736	0.151
GEA02 R	0.0522	0.0626	0.0115	0.0607	0.0397	0.1027	0.2185	-0.0651	0.0403	0.1523	0.2005	0.0719	0.0214	0.2167
Sig. (2-tailed)	0.6137	0.5447	0.9112	0.5567	0.7011	0.3195	0.0325*	0.5283	0.6964	0.1386	0.0502	0.4866	0.8363	0.0339*
GEA03 R	0.2278	0.219	0.0994	0.1427	0.1257	0.1428	0.2854	-0.0018	0.1468	0.2751	0.2729	0.1878	0.1092	0.3494
Sig. (2-tailed)	0.0256*	0.0320*	0.3354	0.1654	0.2222	0.1651	0.0048*	0.9863	0.1536	0.0067*	0.0072*	0.0669	0.2895	0.0005*
GEA04 R	0.0994	0.0756	0.2506	0.2639	0.0771	0.0457	0.3192	-0.1454	0.0659	0.1451	0.0497	-0.0529	0.1459	0.1577
Sig. (2-tailed)	0.335	0.4639	0.0138*	0.0094*	0.4555	0.6585	0.0015*	0.1576	0.5236	0.1583	0.6308	0.6085	0.1562	0.1248
GEA05 R	0.0429	0.1	0.1787	0.0999	0.0073	0.0658	0.2087	0.0481	-0.0218	0.034	-0.0439	-0.0684	0.2349	0.1075
Sig. (2-tailed)	0.678	0.3323	0.0815	0.333	0.9438	0.5243	0.0413*	0.6418	0.8332	0.7425	0.6713	0.5076	0.0212*	0.2972
GEA06 R	0.1332	0.1627	-0.114	-0.1343	0.1096	0.2728	0.0397	0.3401	0.0749	0.0574	0.0742	0.0917	0.1509	0.1497
Sig. (2-tailed)	0.1959	0.1133	0.2689	0.1919	0.2877	0.0072*	0.701	0.0007*	0.4684	0.5788	0.4722	0.3743	0.1423	0.1456

Table 5 (Continued). Summary of Spearman rank correlation test results for GEA and ACC (N = 96).

Parameter	ACC01	ACC02	ACC03	ACC04	ACC05	ACC06	ACC07	ACC08	ACC09	ACC10	ACC11	ACC12	ACC13	ACC14
GEA07 R	0.0996	0.2285	0.0732	0.1029	0.0508	0.1396	0.2782	0.1098	-0.0126	0.1373	0.1761	0.0311	0.1265	0.3671
Sig. (2-tailed)	0.3344	0.0251*	0.4784	0.3187	0.6231	0.1748	0.0061*	0.287	0.9031	0.1822	0.0861	0.7634	0.2196	0.0002*
GEA08 R	0.1056	0.1854	0.0294	0.0789	0.0692	-0.0709	0.2375	-0.0941	0.233	0.1655	0.0251	0.081	0.0269	0.2145
Sig. (2-tailed)	0.306	0.0706	0.7761	0.4449	0.5031	0.4925	0.0198*	0.3618	0.0223*	0.107	0.8083	0.433	0.7944	0.0358*
GEA09 R	0.1485	0.3797	0.0403	0.1706	0.2818	0.0458	0.0952	0.0867	0.1142	0.2889	0.197	0.1529	0.2065	0.1509
Sig. (2-tailed)	0.1488	0.0001*	0.6966	0.0965	0.0054*	0.6577	0.356	0.401	0.2678	0.0043*	0.0544	0.137	0.0435*	0.1423
GEA10 R	-0.0099	0.1615	0.1041	0.1563	0.1788	0.1345	0.1737	-0.0222	-0.0275	0.1571	0.1773	0.1761	0.0914	0.1444
Sig. (2-tailed)	0.9241	0.1159	0.3129	0.1283	0.0813	0.1912	0.0905	0.8301	0.7903	0.1263	0.084	0.0861	0.3757	0.1605
GEA11 R	-0.0345	0.0997	0.0714	0.1489	0.091	0.175	0.1199	-0.0803	-0.0524	0.1992	0.1785	0.1563	0.238	0.1766
Sig. (2-tailed)	0.7389	0.3339	0.4895	0.1477	0.3777	0.0882	0.2447	0.4366	0.6124	0.0517	0.0818	0.1284	0.0195*	0.0851
GEA12 R	0.1121	0.0863	-0.0091	0.1208	0.1063	0.1239	0.2574	-0.1654	0.0056	0.1196	0.0635	0.0997	0.1346	0.2829
Sig. (2-tailed)	0.2768	0.4029	0.93	0.241	0.3028	0.2291	0.0113*	0.1074	0.9571	0.2456	0.5389	0.3339	0.1911	0.0052*

Table 5 (Continued). Summary of Spearman rank correlation test results for GEA and ACC (N = 96).

Parameter	ACC01 ACC02 ACC03 ACC04 ACC05 ACC06 ACC07 ACC08 ACC09 ACC10 ACC11 ACC12 ACC13 ACC14													
GEA13 R	0.059	0.2626	-0.1519	0.0418	0.1347	0.2054	-0.0208	0.0283	-0.0263	0.2101	0.1547	0.1725	0.1476	0.1658
Sig. (2-tailed)	0.5683	0.0097*	0.1396	0.6857	0.1907	0.0447*	0.8409	0.7841	0.7993	0.0399*	0.1323	0.0929	0.1511	0.1065
GEA14 R	0.6223	0.3859	0.2027	0.1812	0.2107	0.1441	0.2005	-0.0497	0.1008	0.0882	0.0833	0.1127	0.0379	0.1816
Sig. (2-tailed)	0.0000*	0.0001*	0.0476*	0.0772	0.0393*	0.1613	0.0502	0.6307	0.3286	0.3927	0.4197	0.2745	0.7141	0.0766
GEA15 R	0.1146	0.3786	0.0941	0.1818	0.0541	0.2209	0.1644	0.1611	0.0492	0.1236	0.2278	0.1664	0.0607	0.1092
Sig. (2-tailed)	0.2663	0.0001*	0.362	0.0762	0.6008	0.0305*	0.1094	0.117	0.634	0.2301	0.0256*	0.1051	0.5569	0.2894
GEA16 R	0.1098	0.334	0.0237	0.0801	0.0623	0.1819	0.1105	0.1092	0.1925	0.2382	0.1369	0.176	0.2862	0.0871
Sig. (2-tailed)	0.287	0.0009*	0.8191	0.4381	0.5463	0.0762	0.2839	0.2896	0.0603	0.0194*	0.1835	0.0862	0.0047*	0.399
GEA17 R	0.3137	0.2146	0.0202	0.1407	0.201	0.4527	0.2907	0.0581	0.0971	0.2853	0.272	0.2729	0.2937	0.3258
Sig. (2-tailed)	0.0019*	0.0357*	0.8448	0.1714	0.0495*	0.0000*	0.0041*	0.5741	0.3464	0.0048*	0.0073*	0.0071*	0.0037*	0.0012*
GEA18 R	0.1127	0.1337	-0.0929	-0.0626	0.0569	0.2431	0.095	0.0314	0.2651	0.2117	0.1342	0.2698	0.1142	0.185
Sig. (2-tailed)	0.2745	0.194	0.368	0.5448	0.5821	0.0170*	0.357	0.7613	0.0090*	0.0384*	0.1925	0.0079*	0.2677	0.0712

Table 5 (Continued). Summary of Spearman rank correlation test results for GEA and ACC (N = 96).

Parameter	ACC01	ACC02	ACC03	ACC04	ACC05	ACC06	ACC07	ACC08	ACC09	ACC10	ACC11	ACC12	ACC13	ACC14	
GEA19	R	0.019	0.0766	0.1771	0.2019	0.1419	0.1839	0.2721	0.0328	0.236	0.2315	0.1085	0.1247	0.2219	0.0889
	Sig. (2-tailed)	0.8543	0.4585	0.0843	0.0485*	0.1679	0.0729	0.0073*	0.7512	0.0206*	0.0232*	0.2927	0.2262	0.0298*	0.389
GEA20	R	0.0094	-0.0364	-0.0555	-0.1699	0.0087	0.0989	0.1742	-0.0156	0.2376	0.2282	0.1155	0.2625	0.0912	0.234
	Sig. (2-tailed)	0.9275	0.725	0.591	0.0979	0.9331	0.3377	0.0896	0.8804	0.0197*	0.0254*	0.2625	0.0098*	0.3769	0.0217*
GEA21	R	-0.0421	0.1131	-0.0484	-0.1439	0.0011	0.0936	-0.0586	0.5548	0.0521	0.1773	0.2037	0.2136	-0.0117	0.2673
	Sig. (2-tailed)	0.6838	0.2724	0.6399	0.162	0.9912	0.3645	0.5706	0.0000*	0.6143	0.0839	0.0465*	0.0366*	0.9102	0.0085*
GEA22	R	-0.0533	-0.0383	0.1258	0.0431	-0.0505	0.0263	0.1311	0.0011	-0.0711	0.016	0.0286	0.0745	-0.0098	0.1933
	Sig. (2-tailed)	0.6061	0.7112	0.222	0.6767	0.6254	0.7993	0.2028	0.9912	0.4914	0.877	0.7819	0.471	0.9245	0.0592

awareness as a foundation for improving understanding of specific climate change issues. However, educational interventions should be designed to make these connections explicit and relevant to students.

Correlation between GEA and Attitudes Towards Climate Change (ATCC)

Overall, the responses from this section suggest that students not only reject climate change denial but also display a readiness to adopt practical strategies for adaptation and mitigation. Their responses reflect both an awareness of the urgency of climate change and a willingness to participate in collective and individual actions to address it. This suggests that, for many students, awareness of environmental issues has translated into attitudes that are constructive and action-oriented.

Table 6 summarizes the percentage of students' responses to this section.

Table 6. Students' responses to the Likert scale questionnaire on ATCC (N = 96).

Statement	Percentage of Responses			
	Strongly Disagree	Disagree	Agree	Strongly Agree
People engaged in climate change work are making a big deal of nothing.	76.0	19.8	2.1	2.1
Climate change is not affecting us in our community.	92.7	7.3	0.0	0.0
We are not responsible for causing global climate change.	77.1	18.8	3.1	1.0
I feel confused about climate change.	45.8	43.8	10.4	0.0
I am hopeful because I can do something to help protect ourselves against climate change.	5.2	12.5	61.5	20.8
I feel I need more information about climate change.	6.3	28.1	39.6	26.0
I do not care about climate change.	87.5	11.5	0.0	1.0
I believe there are useful ways for households to adapt/survive climate change, such as turning off lights when not in use.	0.0	3.1	13.5	83.3
I believe there are useful ways for households to adapt/survive climate change, such as using energy-saving light bulbs.	1.0	5.2	20.8	72.9
I believe there are useful ways for households to adapt/survive climate change, such as using energy-saving appliances.	0.0	1.0	21.9	77.1
I believe there are useful ways for households to adapt/survive climate change, such as using public transportation to save gas.	5.2	13.5	27.1	54.2
I believe there are useful ways for households to adapt/survive climate change, such as switching off standby devices.	0.0	4.2	25.0	70.8
I believe there are useful ways for households to adapt/survive climate change, such as defrosting the refrigerator/freezer often.	3.1	11.5	32.3	53.1
I believe there are useful ways for households to adapt/survive climate change, such as reusing or recycling waste when possible (e.g., plastic containers).	0.0	1.0	8.3	90.6
I want to talk about saving energy (electricity, gas, fuel) at home.	2.1	12.5	31.3	54.2
I want to talk about saving water at home.	2.1	8.3	37.5	52.1

The statistics in Table 6 highlight three main themes in students' attitudes. First, denialist views were overwhelmingly rejected: for instance, 76.0% strongly disagreed with the idea that climate change work is "making a big deal of nothing," while 92.7% strongly disagreed that climate change is "not affecting us in our community." This indicates a clear acknowledgment of the reality of climate change. Second, students expressed emotional and cognitive engagement: they generally disagreed (43.8%) or strongly disagreed (45.8%) with the notion that climate change is confusing, while a strong majority recognized the usefulness of adaptation strategies such as energy-saving light bulbs (72.9%) and appliances (77.1%). Third, there was a clear readiness to act at the household level, with more than half of respondents agreeing or strongly agreeing with statements about carpooling (61.5%), recycling (90.6%), and discussing energy-saving practices at home (54.2%). These findings suggest that while some students are still working through climate-related uncertainties, most are oriented toward practical engagement. These findings echo those of Stevenson et al. (2016), who reported that younger generations generally reject climate skepticism and are also beginning to internalize pro-environmental behaviors.

The relationship between GEA and ATCC ranges from very weak to moderate ($R = 0.0006$ to 0.4343), with 105 out of 374 pairs (28.1%) displaying significant correlations. Table 7 summarizes the Spearman rank correlation coefficients (R) and their corresponding significance values between GEA and ATCC indicators among 96 respondents.

At a significance level of $\alpha = 0.05$, 105 of 374 pairs (28.1 %) in Table 7 were found to be significantly correlated, as marked with an asterisk (*). This suggests a stronger link between environmental awareness and attitudes toward climate change than the previously studied variables. Higher awareness often correlates with more informed attitudes; however, many correlations remain insignificant, suggesting that general environmental awareness does not strongly influence attitudes for most students. This highlights the need for targeted interventions to connect environmental awareness with the fostering of positive attitudes towards climate change. This finding is consistent with those of Boeve-de Pauw & Van Petegem (2017), which revealed that while environmental awareness moderately influences attitudes toward climate change, the relationship is often complex and can be shaped by numerous social and cultural factors. This highlights the need for targeted interventions to connect environmental awareness with the fostering of positive attitudes towards climate change.

The study reveals that students demonstrate basic climate change knowledge, which does not consistently translate into career interest or deeper engagement, as the majority of the students expressed limited (52.0%) to no knowledge (14.3%) of climate-related careers (Table 1). This disconnect implies that awareness alone is insufficient to foster long-term professional aspirations, possibly due to a lack of role models, unclear career pathways, or perceived inaccessibility. The weak-to-moderate correlations between GEA and KCC, which is only 9.9% significant (Table 5), suggest that broader environmental awareness does not guarantee detailed climate understanding. Similarly, the modest link between GEA and ACC, which has 22.7% significant correlations (Table 6), indicates that students often fail to connect general environmental concerns with specific climate consequences. However, a stronger association exists between GEA and ATCC, with 28.1% of correlations being significant (Table 7), reflecting students' rejection of climate denial and openness to pro-environmental actions. Media consumption patterns further highlight generational shifts, with a dominant percentage strongly reliant on digital platforms such as Internet/social media (85.4%) for climate information, while traditional media engagement remains low (59.4% rarely use radio/newspapers) (Table 3). While digital platforms are influential, the study underscores the need to ensure accuracy and complement online exposure with structured education.

Table 7. Summary of Spearman rank correlation test results for GEA and ATCC (N = 96).

Parameter	ATCC01	ATCC02	ATCC03	ATCC04	ATCC05	ATCC06	ATCC07	ATCC08	ATCC09	ATCC10	ATCC11	ATCC12	ATCC13	ATCC14	ATCC15	ATCC16	ATCC17	
GEA01	R	-0.016	-0.009	-0.088	-0.413	0.0559	-0.07	-0.229	0.1936	0.2407	0.2735	0.2088	0.1897	0.2384	0.0069	0.3186	0.214	0.1902
Sig. (2-tailed)		0.8775	0.9285	0.3945	0.0000*	0.5889	0.4998	0.0247*	0.0588	0.0181*	0.0070*	0.0412*	0.0642	0.0194*	0.9465	0.0016*	0.0363*	0.0634
GEA02	R	0.011	0.1314	-0.028	-0.245	-0.075	0.007	-0.146	0.2355	0.1722	0.2774	0.1203	0.1304	0.1891	-0.032	0.35	0.1168	0.1912
Sig. (2-tailed)		0.9156	0.2021	0.7896	0.0163*	0.4685	0.9461	0.1573	0.0209*	0.0934	0.0062*	0.243	0.2053	0.065	0.7575	0.0005*	0.257	0.062
GEA03	R	-0.034	-0.059	-0.036	-0.154	-0.015	0.1965	-0.153	0.0989	0.0675	0.1672	0.0388	0.1401	0.1222	0.1135	0.1543	0.1563	0.2114
Sig. (2-tailed)		0.7444	0.5684	0.7278	0.1355	0.8821	0.055	0.137	0.3375	0.5132	0.1034	0.7075	0.1733	0.2355	0.2709	0.1333	0.1284	0.0387*
GEA04	R	-6E-04	0.0561	-0.181	-0.122	-0.037	0.1534	-0.075	0.1452	0.1806	0.217	0.0872	0.081	0.2289	0.1099	0.2487	0.116	0.1823
Sig. (2-tailed)		0.9954	0.587	0.0784	0.237	0.7228	0.1356	0.4682	0.158	0.0783	0.0337*	0.3984	0.4328	0.0249*	0.2863	0.0145*	0.2605	0.0755
GEA05	R	-0.152	-0.108	-0.115	-0.076	-0.057	0.1825	-0.275	0.0218	-0.03	-0.03	0.0558	0.0724	0.0526	0.0306	0.0633	-0.065	0.0876
Sig. (2-tailed)		0.14	0.2961	0.263	0.4632	0.58	0.0752	0.0068*	0.8328	0.7724	0.7735	0.5891	0.4833	0.6109	0.7672	0.5402	0.5291	0.3962
GEA06	R	-0.144	-0.424	-0.153	-0.309	-0.125	-0.091	-0.16	0.3311	0.2289	0.1629	0.2755	0.1412	0.1057	0.2632	0.2091	0.1261	0.1332
Sig. (2-tailed)		0.1612	0.0000*	0.1372	0.0022*	0.2251	0.3781	0.1198	0.0010*	0.0249*	0.1127	0.0066*	0.1699	0.3052	0.0096*	0.0409*	0.221	0.1956
GEA07	R	-0.009	-0.233	-0.035	-0.062	0.0828	0.1326	-0.211	0.2483	0.0727	0.1224	-0.024	0.0433	0.1679	0.1792	0.1196	0.1365	0.2522
Sig. (2-tailed)		0.9315	0.0221*	0.7369	0.5511	0.4225	0.1979	0.0394*	0.0147*	0.4817	0.2347	0.8204	0.675	0.1021	0.0807	0.2459	0.1849	0.0132*
GEA08	R	0.0619	0.0472	0.1071	-0.028	0.1898	0.1098	-0.032	0.0566	-0.033	-0.029	-0.04	0.0108	0.189	0.1183	0.0136	-6E-04	0.0334
Sig. (2-tailed)		0.5491	0.6482	0.299	0.7872	0.0641	0.2867	0.7609	0.5841	0.7523	0.7764	0.7	0.9171	0.0651	0.2511	0.8956	0.995	0.7464

Table 7 (Continued). Summary of Spearman rank correlation test results for GEA and ATCC (N = 96).

Parameter	ATCC01	ATCC02	ATCC03	ATCC04	ATCC05	ATCC06	ATCC07	ATCC08	ATCC09	ATCC10	ATCC11	ATCC12	ATCC13	ATCC14	ATCC15	ATCC16	ATCC17	
GEA11	R	0.078	0.0573	-0.014	-0.037	-0.043	0.1502	-0.214	0.3435	0.185	0.1517	0.0653	0.2169	0.2418	0.1733	0.1034	-0.031	0.0617
Sig. (2-tailed)		0.4503	0.5795	0.8957	0.7193	0.6752	0.1441	0.0366*	0.0006*	0.0711	0.14	0.5276	0.0338*	0.0176*	0.0913	0.3161	0.768	0.5501
GEA12	R	0.0581	0.046	-0.039	0.0351	0.0835	0.0612	-0.005	0.1913	0.1082	0.2007	-0.056	0.028	0.1209	0.0975	0.1747	0.0056	0.0387
Sig. (2-tailed)		0.5741	0.6566	0.7046	0.7339	0.4189	0.5534	0.9625	0.0619	0.2938	0.0499*	0.5914	0.7867	0.2406	0.3448	0.0887	0.9566	0.7083
GEA13	R	-0.075	-0.002	-0.066	-0.105	0.0528	-0.243	-0.18	0.287	0.2028	0.222	0.1132	0.0333	0.184	0.0631	0.1369	0.0451	0.0855
Sig. (2-tailed)		0.4691	0.9856	0.5257	0.3075	0.6094	0.0170*	0.079	0.0046*	0.0476*	0.0297*	0.2722	0.7471	0.0728	0.5413	0.1836	0.6629	0.4074
GEA14	R	-0.081	-0.24	-0.086	0.0262	0.1422	0.1139	0.0551	0.1566	0.1067	0.1318	0.0422	0.0717	0.1062	0.0496	0.224	0.2546	0.261
Sig. (2-tailed)		0.4303	0.0187*	0.403	0.8002	0.167	0.2693	0.5939	0.1277	0.3006	0.2007	0.6833	0.4879	0.3031	0.6316	0.0282*	0.0123*	0.0102*
GEA15	R	0.0671	-0.23	-0.344	-0.136	0.0839	-0.013	-0.269	0.3262	0.3248	0.4343	0.2213	0.1298	0.3755	0.2106	0.3306	0.1945	0.2014
Sig. (2-tailed)		0.516	0.0245*	0.0006*	0.1871	0.4162	0.9002	0.0081*	0.0012*	0.00012*	0.0000*	0.0302*	0.2075	0.0002*	0.0394*	0.0010*	0.0575	0.0491*
GEA16	R	-0.07	-0.223	-0.23	-0.066	0.1759	0.1294	-0.031	0.2547	0.2136	0.1882	0.3819	0.3323	0.352	0.2296	0.1253	0.1089	0.0928
Sig. (2-tailed)		0.5012	0.0288*	0.0240*	0.5201	0.0866	0.2088	0.7663	0.0123*	0.0366*	0.0663	0.0001*	0.0009*	0.0004*	0.0245*	0.2238	0.291	0.3686
GEA17	R	-0.048	-0.236	-0.158	-0.124	0.2114	0.0917	-0.132	0.3322	0.3388	0.3673	0.3398	0.308	0.3289	0.2827	0.2912	0.2404	0.3
Sig. (2-tailed)		0.6415	0.0204*	0.1239	0.2286	0.0387*	0.3745	0.1997	0.0009*	0.0007*	0.00002*	0.0007*	0.0023*	0.0011*	0.0053*	0.0040*	0.0183*	0.0030*
GEA18	R	-0.198	-0.074	-0.028	-0.204	-0.045	-0.064	-0.013	0.3037	0.291	0.3348	0.254	0.276	0.3444	0.3096	0.3261	0.1787	0.1535
Sig. (2-tailed)		0.0538	0.4748	0.7885	0.0459*	0.6641	0.5366	0.9029	0.0026*	0.0040*	0.0009*	0.0125*	0.0065*	0.0006*	0.0021*	0.0012*	0.0815	0.1355

Table 7 (Continued). Summary of Spearman rank correlation test results for GEA and ATCC (N = 96).

Parameter	ATCC01	ATCC02	ATCC03	ATCC04	ATCC05	ATCC06	ATCC07	ATCC08	ATCC09	ATCC10	ATCC11	ATCC12	ATCC13	ATCC14	ATCC15	ATCC16	ATCC17	
GEA19	R	-0.011	-0.081	-0.144	-0.078	0.1503	0.163	-0.136	0.1453	0.0522	0.0636	0.2219	0.1484	0.2783	0.2691	0.0671	0.1515	0.2514
Sig. (2-tailed)		0.9166	0.4319	0.1625	0.4476	0.1438	0.1126	0.1875	0.1578	0.6135	0.538	0.0298*	0.149	0.0060*	0.0080*	0.5157	0.1407	0.0135*
GEA20	R	-0.167	0.0543	-0.003	-0.208	-0.251	-0.009	0.1264	0.1699	0.0797	0.1988	0.2295	0.2297	0.1012	0.2527	0.2704	0.0588	0.0622
Sig. (2-tailed)		0.1033	0.5992	0.981	0.0420*	0.0135*	0.9342	0.2198	0.0979	0.44	0.0522	0.0245*	0.0244*	0.3267	0.0130*	0.0077*	0.5694	0.5469
GEA21	R	-0.167	-0.41	-0.174	-0.246	-0.185	-0.171	-0.111	0.0751	0.0515	0.043	0.0752	-0.031	0.0109	0.1831	-0.058	0.0384	0.0409
Sig. (2-tailed)		0.1037	0.0000*	0.0896	0.0157*	0.0711	0.0958	0.2809	0.467	0.6185	0.6777	0.4664	0.7622	0.9161	0.0742	0.5763	0.71	0.6922
GEA22	R	0.2194	0.0031	0.0321	-0.17	0.0106	0.0623	-0.147	0.2534	0.1194	0.1876	0.1474	0.0718	0.1668	0.2381	0.0182	0.03	0.1159
Sig. (2-tailed)		0.0317*	0.9758	0.7564	0.0971	0.9184	0.5466	0.1531	0.0127*	0.2465	0.0673	0.1517	0.4872	0.1044	0.0195*	0.8602	0.7714	0.261

CONCLUSION AND RECOMMENDATIONS

The findings indicate that Grade 8 students exhibit high environmental awareness, particularly on issues directly affecting them, such as the rising heat index. Their knowledge of essential resources, such as water and education, reflects a strong environmental consciousness. However, awareness is shaped by proximity, which is evident in their limited concern about coastal erosion. Students demonstrate a solid understanding of climate change causes and effects, but there remains a need for further education on mitigation strategies and access to additional learning sources. Their awareness and knowledge are largely shaped by personal experiences and digital media, while traditional sources like radio and television play a lesser role.

Students show a pro-environmental mindset and a sense of responsibility toward addressing climate issues, as seen in their willingness to adopt energy-saving practices at home, demonstrating a readiness to take action. They strongly reject perspectives that downplay climate change and are open to engaging with digital platforms for learning. These findings underscore the need to integrate digital tools to support climate literacy and encourage sustainable behavior among learners.

Despite their environmental awareness and positive attitudes, the weak correlation between general environmental awareness and other parameters reveals a gap in translating knowledge into informed action. Schools must enrich climate education by incorporating practical solutions, such as energy conservation and waste management, through project-based learning and partnerships with environmental organizations. To deepen climate literacy, curriculum revisions should include topics like climate justice, renewable energy technologies, and interdisciplinary approaches that link science with ethics, economics, and policy, making learning more relevant and meaningful.

One intervention is the integration of Climate Education with Career Guidance by developing programs that explicitly link climate knowledge to career opportunities, showcasing role models and viable pathways in sustainability fields. The program may also involve partnerships with professionals in green industries for mentorship and workshops to demystify climate careers. Another proposal is the improvement of climate literacy by designing curricula that connect environmental concepts to localized climate impacts and actionable solutions. Project-based learning may be used to deepen students' engagement with climate science and policy. Another intervention is collaboration with credible online platforms and influencers to disseminate accurate climate content tailored to youth. For strengthening attitudinal and behavioral pathways, an intervention is the promotion of hands-on initiatives (e.g., school sustainability projects) to reinforce practical engagement.

STATEMENT OF AUTHORSHIP

The first author facilitated respondent orientation, conducted data collection, identified thematic insights, formulated recommendations, and led the manuscript writing. The second author conceptualized the study, raised key issues, conducted a preliminary literature review, and critically reviewed the manuscript. The third author performed the statistical analysis and extended the literature review.

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