

Level of Climate Change Awareness and Participation in the Environmental Program Among Learners

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Abstract. This study explored the relationship between learners' participation in student-led environmental programs and their climate change awareness in public elementary schools of District I, San Fernando, Bukidnon. Guided by Bandura's Social Learning Theory and the Knowledge, Attitudes, and Practices (KAP) framework, the research examined how engagement in environmental organizations influences students' knowledge, attitudes, and behaviors toward climate change. The respondents were Grade 5 and 6 learners actively involved in organizations such as the Youth for Environment in Schools Organization (YES-O) and Youth Advocates for Climate Action Philippines (YACAP). Data were collected through a validated survey instrument and analyzed using descriptive and correlational statistical methods. Findings revealed that learners actively participated in environmental initiatives, particularly collaborative and hands-on activities, and demonstrated high levels of awareness regarding climate change, encompassing cognitive understanding, affective commitment, and practical pro-environmental behaviors. The study also found a positive relationship between participation in environmental programs and climate change awareness, highlighting the role of experiential and peer-led learning in fostering environmental stewardship. Based on these results, the study emphasizes the value of student-led programs in nurturing climate-conscious learners and recommends further integration of participatory environmental education in school curricula. Future researchers are encouraged to investigate long-term impacts of sustained engagement in such programs.

Introduction

Climate change is one of the greatest challenges with extensive consequences on the ecosystem, economies, and most societies worldwide. Nevertheless, as scientific awareness has increased, many young people lack proper knowledge and interest in the issues of climate. The contribution of the public schools, where the young ones spend a good portion of their formative years, in aggravating climate change awareness is highly important. However, the traditional teaching methods tend to exclude the students in the issues of the environment. The paper will be aimed at affecting knowledge, attitudes, and behavioral changes among students as a response to the challenge of inadequate awareness and participation in climate change by students through addressing student-led environmental programs.

On a more global scale, student engagement in environmental activities is emerging as an actor to increase individual climate literacy and prompt civic action. It has been proved through experiments that student-initiated projects such as environmental association, lobbying, and community service contribute to the attainment of improved understanding and commitment to sustainability. The students may be empowered through the opportunities of learning in practice to become climate agents of change, which are consistent with action-based and participatory climate education models promoted by UNESCO and the United Nations of Elkalaf (2024); UNESCO, 2025).

Climate change education is another familiar term in national system of Philippine since policies on climate change have been incorporated in the education systems of Climate change commission and the department of education. They include the incorporation of the subject of climate in curriculum and co-curricular programs, critical thinking, digital literacy and

community participation to build climate resilience. Student-led programs are significant since they can be used to address any disinformation in the allocation and distribution of resources and can further enrich the learning process. They are also instrumental in changing the predisposition of students to action with regard to the pressing climate issues (Climate Change Commission, 2024; Department of Education Philippines, 2021).

Community schools are also particularly vulnerable to the effects of climate such as typhoons and flooding, and environmental degradation at the communal level. The environmental programmes started by the students provide a simple method of imparting training to the learners on environmental conservation practices including waste recycling, tree planting, and energy conservation. The programs enable the development of environmental ethic sense and peer influence that are necessary in massive behavior change within local communities. The evaluation of the efficiency of such grassroots programs will assist to comprehend how the empowerment of students as climate stewards could help to reach educational and ecological objectives.

The research will establish the effectiveness of student initiated environmental programs in enhancing climate change awareness in the community schools by the increase in their knowledge, attitude change, and behavior intentions. Through this paper, better educational policy making can be achieved, which would enable the young people to deal with climatic crisis by bridging the gap between the global context and national policy to the community-based activity.

Methodology

The type of research design applied in this study was a descriptive-correlational research design. The descriptive design was used to test the level of climate change awareness concerning the engagement in environmental programs among the active members in the student-led organizations in the District I of San Fernando, Bukidnon in the school year 2025-2026. The correlational design was adopted to determine the correlation between the involvement of students in the environmental programs and their awareness on climate change. Some statistical analysis to show the strength and direction of the relationship between these variables will be carried out and this will provide some insight as to how being a participant in environmental initiatives can influence the knowledge and attitudes of the students towards the environment.

The study was conducted in the Bukidnon District I, San Fernando. Geographical and socio-economic heterogeneity of this region means that the schools in this district are found in urban and rural barangays. These schools were selected because they are actively implementing the environmental education program and therefore; they have student led environmental organizations such as Youth for Environment in Schools Organization (YES-O) which will be a perfect setting to conduct the research on the level of student participation and awareness with respect to climate change. The place geography like the socio-economic background and the setting of the community provides relevant conditions that may either lead to or not to involvement and awareness of climate change in the students. This location will be used to conduct the study since the site will offer a discerning account of the realities of teaching and practicality in the field of environmental learning and involvement in.

The sample population in this study was the grade 5th and 6th students who became members of any of the environmental groups that actively engaged in lobbying about climate changes and environmental conservation in the District I of Bukidnon in the school year 2526 in San Fernando. They were such organizations as Youth Advocates of Climate Action Philippines (YACAP), Youth for Climate Hope, SustainablePh Youth, Kids for Kids, and local clubs of Youth for Environment in Schools Organization (YES-O).

The decision to select 250 learners was based on their active involvement in the existing environmental programs, initiatives and campaigns aimed at distributing the information regarding climate awareness and sustainable practices at their schools and communities. These groups were considered main respondents in the study to provide their information about the activities of their group, the extent of their participation and how they perceived to have contributed to the extent of awareness of the issue of climate change among the youths. It was one of the ways the study could have gained holistic information on organizational practices and also explore relationships existing between environmental engagement on group level and the general climate change education outcomes among youths in the Philippines. In the current study, complete enumeration was employed by the authors to get the respondents. The research would involve the whole 250 learners in Grades 5 and 6 of the public schools in the city of San Fernando and the Bukidnon District I. By using the full enumeration, all the learners in the targeted population will be catered to and the data obtained will be that of the entire population of interest.

The advantage of the approach is that it eliminates sampling bias, and the researcher will have the opportunity to gather a complete and accurate sample of information on the awareness of climate change and the level of participation of the

learners in the environmental programs. This is attributed to the fact that, involving all the learners would imply that the research findings will be representative of the entire population of Grades 5 and 6 of the School Year 2025-2026.

The research instrument was formulated and redesigned on the writing of Bandura, the Social Learning Theory (1977), which assumes that people acquire the behaviors as a result of observation, imitation and modeling of other people in a social setup. This theoretical framework enables the actualization that engagement in the environmental organizations could influence the learner knowledge, attitudes and practices towards climate change by viewing and communicating with peers and role models. Moreover, the tool was adjusted using the frameworks of Knowledge, Attitudes and Practices (KAP) survey models by Florendo and Padua (2017) and UNESCO (2019) to fully examine the climate change awareness. This is due to the fact that the KAP framework will ensure that the survey will be in a position to measure the cognitive, affective and behavioral levels of climate education.

The assessment tool offered by the Youth for Environment in Schools Organization (YES-O), which was developed under DepEd directive in 2011 and was mandatory as mandated by DepEd Order No. 52, s. 2011 was also a useful source of student-led organization involvement and school environment intervention assessment. These sources were rather extensive to form a valid and reliable tool to be modified to evaluate the participation of student-led organizations and its effect on climate change awareness.

The responses of the questionnaires were tabulated to establish the degree to which among the learners was involved in the environmental programs in ensuring promotion of climate change and the numerical data of each of the responses were as follows. The responses of the questionnaires were tabulated to establish the degree to which among the learners was involved in the environmental programs in ensuring promotion of climate change and the numerical data of each of the responses were as follows.

The data collection process began with a letter requesting permission to conduct the study that were properly authorized by the Dean of the School of Graduate Studies of Valencia Colleges Incorporated (Bukidnon) to request permission to the School Division of Bukidnon and the schools in District 1 of San Fernando, Bukidnon, to finish the school year 2025-2026. To seek the authorization to carry out the study, a letter of request was sent to the Division Office of Bukidnon through the Schools Division Superintendent.

To ensure the appropriate interpretation and analysis of data collected in the research, the appropriate statistical tools were used in the interpretation of the collected data. The weighted mean was used to be aware of how much the students have been taking part in the environmental programs and the level of their awareness on climate change. This statistical tool established the average response of the respondents to each of the indicators and ended the general level concerning the given scale. Consistency or variability of the responses provided by the respondents was also established using the standard deviation.

To verify the credibility and reliability of the research tool, Cronbach's alpha coefficient was determined. This is appropriate since the questionnaire will be administered on a Likert scale to determine the extent to which the students are involved in environmental programs that is their awareness about climate change. Cronbach's alpha was preset to 0.70 and more, which implies that the instrument is reliable and may be applied in the study.

Additionally, Pearson Product-Moment Correlation Coefficient (r) was used in order to determine the significant relationship between the student engagement in environmental programs and environmental awareness to climate change. This is a statistical tool which measures the strength and direction of association between two variables. The level of significance set was at 0.05 level of significance. When the P-value obtained is below 0.05, the null hypothesis is rejected in the case, indicating the presence of a significant relationship between the involvement of students in environmental programs and their climate change awareness. On the other hand, in case p-value is greater than 0.05 null hypothesis will be accepted, that is, there is no significant relationship between the variables. All the statistics calculations will be provided with the help of corresponding statistical software to ensure the accuracy and reliability of the obtained results.

The ethics were also adhered to in this research to bring about rights and well-being of the subjects of the research. Prior to the conduction of the data collection, informed consent was maintained before the leaders or representatives of sampled student led environmental organization undertook the data collection. They were given all the details about the study nature, purpose and scope and they engaged in the study voluntarily and had an opportunity of ending the study any time they felt like without repercussions. The confidentiality and anonymity of the research participants were also upheld in all the data processing and reporting by using codes instead of personal identifiers. The information obtained was kept and solely applied in research to maintain unauthorized access.

The government in the region like the School Division of Bukidnon and the individual schools were requested to seek a free hand to conduct the study and that it does not conflict with the school guidelines and policies. The survey instrument was properly designed to avoid sensitive or obstructive questions, which would result in any harm or sufferings to the respondents. During the research, the rights and the dignity of all the respondents will be given due respect concerning the ethical considerations of the research, both in education and the environment.

Results and Discussion

This section presents the analysis and interpretation of the data gathered to determine the level of learners' participation in environmental programs, their climate change awareness in terms of knowledge, attitudes, and practices, and the relationship between these variables. The results are discussed using descriptive statistics such as mean and standard deviation, and inferential statistics to determine significant relationships. The findings are interpreted in light of *Social Learning Theory* (Bandura, 1977) and the *Knowledge, Attitudes, and Practices (KAP) Framework* (UNESCO, 2017).

The level of participation in the environmental programs among learners.

Activities	Mean	SD	QD
Organizing environmental awareness campaigns	3.36	0.98	High
Conducting tree planting activities	3.74	1.13	High
Participating in waste management/recycling projects	3.69	1.11	High
Engaging in climate change advocacy efforts	3.49	1.15	High
Collaborating with community/environmental groups	3.75	1.12	High
Overall Mean	3.61	0.74	High

Table 1 Level of Participation in Environmental Programs

Table 1 reveals the extent to which the learners would join student organized environmental programs with the mean of 3.61 (SD = 0.74) and it is considered high. This means that learners are likely to be participative as well as active in various environmental projects, and that indicates school-based programs are effective in impacting on participation and environmental responsibility. The collaborating with community or environmental group with the highest mean score of 3.75 accompanied by SD = 1.12 and the conducting tree planting activities and participating in waste management or recycling project with the highest mean scores of 3.74 and 3.69 respectively were most of the activities.

These findings point out that the students are more involved in experiential and community-based programs, where the students can directly trace the outcomes of their efforts. It is so because Huang (2025) reported that active participation and control of students in environmental programs is very beneficial in regards to engagement and understanding issues of sustainability. Similarly, Al-Omari (2024) found out that the participatory environmental activities improve student preparedness to act on the problems relating to climate, particularly when the learning process is participative and practical.

Quite to the contrary, the least mean (M = 3.36, SD = 0.98), however, in the high category, was in organizing environment awareness campaigns. This discovery implies that, despite the fact that learners are active actors, they may not be engaged in leadership acts or activities that require a lot of planning. This observation can be linked to the study done by Cadiz and Cortez (2025) that have discovered students tend to engage more in the implementation activities and not in the leadership activities and organization related activities unless they are directed and encouraged by the teachers or facilitators of the programs. It also suggests that there is need to improve the leadership enhancement prospects on environmental programs. The overall high turnout rate justifies the adoption of student-led exercises in improving the environmental engagement. UNESCO (2021) further contributes that experiential and participatory methods of learning are more successful when it comes to translating the knowledge of the environment into sustainable behaviors.

This can also be supported by UNICEF (2023) who pointed out that youth engagement can only be achieved when the learners are actively involved in proximal environmental activities rather than the passive learning. Theoretically, the findings are well validated using the Social Learning Theory put forward by Albert Bandura (1977) on the assertion that through observing, imitating and socialization, people learn. The interest in shared and reviewing activities is very high and it implies that, in addition to learning, the learners are also emulating pro-environmental behavior of other members and tutors. This socialization reinforces the principles of the surrounding and increases the likelihood of preserved behavior change.

The Level of Climate Change Awareness of Students in terms of, Knowledge.

Indicators	Mean	SD	QD
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Climate change is primarily caused by human activities such as burning fossil fuels and deforestation.	3.71	1.15	Agree
Greenhouse gases trap heat in the Earth's atmosphere, leading to global warming.	3.63	1.14	Agree
Rising global temperatures contribute to the melting of polar ice caps and glaciers.	3.63	1.10	Agree
Climate change can affect weather patterns, causing more frequent extreme weather events.	3.73	1.05	Agree
Climate change can adversely affect agriculture, water resources, and human health.	3.83	1.22	Agree
Overall Mean	3.71	0.80	Agree

Table 2 Level of Climate Change Awareness of Students in terms of Knowledge

Table 2 presents the degree of awareness of students regarding climate change in terms of knowledge where the mean of the students is 3.71 (SD = 0.80), which is considered to mean that students agree. It implies that learners are quite familiar with the causes and outcomes of climate change, particularly, those that can be viewed and be directly related to the elements of their daily life. The statement which received the best mean was climate change has the potential to affect human health, water resources, and agriculture negatively (M = 3.83, SD = 1.22). This shows that students will be more informed on the practical and actual life implications of climatic change which happen to be the ones that may have direct implications on their communities. This finding aligns with the finding of Tuazon (2024) and Castro (2025), who determined that contextual and locally-related environmental education is highly important in enhancing the knowledge of the students on the effects of climate. When the learners can link the concepts to real-life experiences, they do not forget easily.

Similarly, the approval by the students on the human factors of climate change (M = 3.71, SD = 1.15) and its influence on the extreme weather patterns (M = 3.73, SD = 1.05) was high. This means that learners are not only aware of climate change, but also understand its scientific nature and what it entails at the global level. This is in accordance with the observation of the research by Palencia (2019) who emphasized the significance of participating in environmental programs as a means of enhancing conceptual and environmental literacy of the students. On the other hand, the lowest mean was reported in the statement regarding the greenhouse gases involvement in the trapping of heat (M = 3.63, SD = 1.14), yet, within the range of the agree option. This is a pointer that the learners may not be quite familiar with less visible processes of climate change as opposed to their more visible impacts. This tendency may be justified by the fact that in this report, it was already mentioned that despite students often being aware of the obvious impacts of climate change, deeper scientific concepts do probably have to be taught and assisted by interactive and inquiry-based learning techniques (UNESCO 2021).

Overall, the findings indicate that the learners have a solid background of knowledge on climate change particularly the causes and effects. This supports the Knowledge Attitudes and Practices Framework created by UNESCO (2017) according to which the knowledge is utilized as the first step in deciding the environmental attitudes and practices. The importance of good knowledge base lies in the capacity of the learners to develop informed point of view as well as performing responsible environmental behaviors.

The results indicate that the raising of climate change awareness within schools has been successful in imparting the background of knowledge among the students particularly in those areas that can be seen. However, the relatively lower level of conceptual understanding of the scientific processes, not to mention the activity of the greenhouse gases, can suggest that the conceptually enriched instruction should be supported with the assistance of the interactive intervention, such as experiments, simulations, and visual modeling. In addition, it is also pointed out that contextualized and experience learning can be applicable in increasing knowledge retention. Environmental activities that are in real life such as tree planting, waste management projects or community-based work in schools should be sustained since it has been found to help in enhancing the higher level of understanding and relevancy in learning.

Besides, regardless of the abundance of knowledge, it is advisable to consider the fact that the awareness gets transferred to the positive attitudes and the sustainable practices. Educators should therefore make sure they come up with programs that would assist in bridging the gap between the knowledge and action where they do not only learn about climate change but also be involved in the mitigation and adaption activities. Overall, the improved level of both conceptual and practical knowledge will help to create not only a knowledgeable, but also an able learner, who will be able to make informed decisions and take the steps towards the environmental sustainability.

The Level of Climate Change Awareness of Students in terms of Attitudes

Indicators	Mean	SD	QD
Climate change is a serious problem that needs urgent attention.	3.98	1.00	Agree
Students have an important role in environmental protection.	4.17	0.98	Agree
Climate change will significantly affect my community	3.94	1.05	Agree
I feel responsible for helping reduce the effects of climate change.	4.08	0.98	Agree
Learning about climate change motivates me to care more for the environment.	4.13	1.09	Agree
Overall Mean	4.06	0.74	Agree

Table 3 Level of Climate Change Awareness of Students in terms of Attitudes

Table 3 reveals the level of climate change awareness in terms of attitudes in students with standard deviation of average 4.06 (SD = 0.74) which means Agree. It implies that the learners are likely to develop positive and favorable orientations to the climate change issues, which have turned into a solid sense of concern, responsibility, and desire to contribute to environmental protection. The statement which received the most important mean was the statement that students play a significant role in the protection of the environment (M = 4.17, SD = 0.98). This means that learners come to the realization of their agency and how they can contribute to a solution to environmental problems. This observation supports the studies that were carried out by Huang (2025) that showed that students are more likely to have increased ownership and responsibility to sustainability activities when given an opportunity to participate in environmental projects.

Similarly, Al-Omari (2024) found out that the involvement in environmental programs will lead to an increment in preparedness to act and readiness to act and this will support pro-environmental attitudes. The second place is occupied by the indicators such as Learning about climate change makes me want to care more about the environment (M = 4.13, SD = 1.09) and I feel responsible about my contribution to the reduction of climate change impact (M = 4.08, SD = 0.98). These results demonstrate that the climate change education is not only knowledge building but it is knowledge building that leads to emotional and personal commitment of the learners. This is justified by the need of effective environmental education highlighted by UNESCO (2017) to address the affective domain and instill values, concern, and motivation in favor of sustainability. On the other hand, the lowest mean was in the statement, Climate change will have a serious impact on my community (M = 3.94, SD = 1.05) but it is still within the range of Agree. It means that even though students might understand the importance of climate change, some of them would lack a more local perspective on the problem, and, thus, more contextual experience with the problem as a global one will help them have a more realistic vision of how the problem on a global scale can affect their local community.

Overall, the results demonstrate that the attitudes of the learners towards the pro-environment are good, concerned, responsible and motivated. The findings can be compared with the Knowledge Attitudes and Practices Framework that points out that attitudes are a significant relationship between knowledge and behavior. Additionally, the positive attitudes can be reinforced with the help of observation, peer pressure and by agreeing to participate in the group-related environmental activities in the course of which learners internalize the shared values and socially responsible conduct (Social Learning Theory of Albert Bandura, 1977).

The findings indicate that environmental education can be useful in achieving positive attitude and emotional interaction of learners to climate change. The feeling of the responsibility and motivation observed is so great that one may suppose that students do not only realize the problem of the environment they live in but are also willing to become its solution. However, this perception is comparatively less, which implies that more emphasis should be made on the improved learning experience with the help of a contextual approach. The schools can contribute to this through inclusion of community-based work, local cases as well as place based environmental work which will enable the learners to be able to equate global climate change to their immediate environment.

Moreover, it is clear that the levels of attitude are high, and educators have a chance to transform the favorable attitude into specific actions. In availing more leadership in schools, more campaigns and spearheading environmental activities should be done so as to harness the motivation of students and make students have potential of becoming environmental champions. In sum, positive attitudes must be developed in the knowledge-practice gap. It is also through the sustained sustainability of learning participatory and experiences that the schools will yield learners who are not only informed but also responsible, committed and proactive to climate change.

The Level of Climate Change Awareness of Students in terms of, Practices

Statements	MD	SD	QD
I regularly participate in activities that help reduce my carbon footprint (e.g., saving electricity, proper waste disposal).	3.72	1.09	Often

I practice environmentally friendly habits at home and in school.	3.79	1.07	Often
I encourage my classmates or family members to practice environmental protection.	3.65	1.15	Often
I help educate others in school or in the community about climate change.	3.69	1.10	Often
I take part in environmental programs such as clean-up drives, tree planting, or awareness campaigns.	3.72	1.22	Often
Overall Mean	3.72	0.83	Often

Table 4 Level of Climate Change Awareness of Students in terms of Practices

Table 4 presents degree of climate change awareness of students in terms of practices with an average of 3.72 (SD = 0.83) and that is regarded as Often. This implies that pro-environmental behaviors of learners are prevalent that is the meaning, their knowledge and attitudes are being converted to actual practices in school and at home. The largest mean is the largest in terms of the indicators; with the case of "I practice environmentally friendly habits at home and in school" (M = 3.79, SD = 1.07). This means that the learners have hitherto mastered environmentally friendly activities and are able to apply them whenever possible in their lives. This fact is supported by Al-Omari (2024) who pointed out that, habitual environmental activities strengthen the habitual environmentally friendly practices among the learners. Similarly, Huang (2025) found out that, such students who are enthusiasts in environmental programs also exhibit better commitment and sustainability practices behaviors. Immediately after them comes the engagement in the carbon footprint reducing activities (M = 3.72, SD = 1.09) and engagement in environmental activities such as clean-up drives and planting of trees (M = 3.72, SD = 1.22). These results indicate that school-based programs can be useful in motivating the participants to participate in group work not only by learning how to perform the action but also by participating in joint environmental activities.

This conforms to the finding by Cadiz and Cortez (2025) who made it clear that, student participation in environmental programs is a strong force behind utilization of sustainable practices and intensification of behavioral change. On the other hand, the least mean of 3.65 with a standard deviation of 1.15 (in any case an interpretation of Often) was the environmental protection as an activity promoted among peers or family members. This means that students might be engaging in green actions in their own lives, but weaker or less engaged in the activities of impacting others and advocacy. One can make the same observation regarding the UNICEF (2023) that stated that young people must be empowered so that they could act on the personal scale and enhance, advance it by engaging in the peer influence and the community advocacy.

Overall, the findings indicate that students will be able to translate their knowledge and attitudes into a consistent environmental practice that is also predetermined by the Knowledge Attitudes and Practices Framework which is proposed by UNESCO (2017) in accordance with which practices are the observable implication of knowledge and attitudes. Further, the more a person engages in the activities of the environment and monitors the behavior of other people, the stronger the behavioral patterns are beyond the theory of Social Learning by Albert Bandura (1977), the more likely it is that the sustainable practices can be learned and can be maintained.

The findings also indicate that the interventions of environmental education could be helpful in the actual behavior change as learners are inclined to extend the environmentally friendly behavioral patterns on the regular basis. It means that schools can help to bridge the divide between the knowledge and action through experimental and participatory learning techniques. However, the relative lack of engagement into motivating other individuals is an indicator that the aspect of peer influence and advocacy skills of the students' needs to be strengthened. Schools can address it by providing the learners with more opportunities to take up leadership roles i.e., organize awareness programs, mentors, or take up leading roles in the environmental program in the community. The findings also indicate the importance of having hands-on and community-based activities as they contribute greatly in coming up with homogeneous environmental practices. It is also possible to make the positive behaviors stronger through the incorporation of these activities in regular school programs that will result in a long-term sustainability. Overall, the students are performing suitable practices individually, but the power to influence others can make the environmental programs more efficient. In their role of responsibility to themselves, as well as to their groups, the schools can manage to come up with an environmentally responsible learner who can as well take the initiative to curb this climate change.

Significant Relationship Between Learners' Participation in Environmental Programs and their Climate Change Awareness

	r-value	p	Remarks
Climate Change knowledge	.570**	.000	Significant
Attitude	.535**	.000	Significant
Practices	.520**	.000	Significant

Table 5 Relationship Between Learners' Participation in Environmental Programs and Their Climate Change Awareness (n= 250)

The correlation between the attendance to the environmental programs and the climate change awareness of the learners with regard to knowledge attitudes and practices are provided in the table. The results indicate that the three dimensions are positive correlations with high strengths. Specifically, the knowledge of climate change was strongly correlated with environmental programs, and the correlation coefficient is 0.570, as well as the p-value is $p = 0.000$, which showed that the relationship was significant and moderate to strong. It implies that active campaigners and tree planters and people that collaborate with environmental organizations have greater chances of being more knowledgeable about climate change, including the knowledge of its anthropogenic factors, the impact of greenhouse gases, and the impact of climate change on the environment and human health. In terms of attitudes, there was also a moderately positive relationship of participation with the $r = 0.535$ and $p = 0.000$ meaning that the participation in environmental programs also presupposes that the learners have more pro-environmental attitude, including the awareness of the responsibility, the seriousness of climate change as a problem and the motivation to act. On the same note, participation was positively linked with climate change practices ($r = 0.520$, $p = 0.000$) implying that active engagement in the programs is related to the mainstream participation, such as waste management, energy consumption, and participation in clean-up programs.

These findings are valuable and these are consistent with the literature review presented in Chapter 2. As Huang (2025) and Al-Omari (2024) have pointed out, the level of student engagement in the environmental projects would lead to rising attitudes and behaviors on sustainability in addition to the level of knowledge. Cadiz and Cortez (2025) have emphasized that initiatives of the latter kind, being led by the students, are helpful in internalizing the climate-conscious behaviors due to the possibility to observe and be actively engaged. Theoretically, the results are consistent with the Social Learning Theory by Bandura (1977) which recognizes that how behaviors, attitudes, and cognitive learning are obtained through observances, modeling, and involvement. The environmental activities that learners undergo in the current research provide them with a social context to simulate and practice climate-friendly activities to enhance their knowledge base, nurture positive minds, and behavior modification.

The null hypothesis that there is no significant relationship between the role of the learners in environmental programs and their knowledge of climate change is rejected because the correlation coefficient of all the dimensions was significant (r-values were between 0.520 and 0.570, $p < 0.01$). These results indicate that the student participation in the environmental programs is a significant variable when building the holistic climate change awareness, which underlies additional promotion of the student-led environmental programs in schools. The findings can also fit the Climate Change Literate Citizenship Framework (Ayar and Ozalp, 2021), where the focus should be on empowerment of people as active citizens in the climate. The fact that the percentage of students who confirm that they play a major role in environmental protection and that they bear responsibility in reducing the effects of climatic change is high, which means that they have acquired the agency and civic responsibility. This indicates that since they undertake sustainable activities most of the time, being a part of it would not only instill awareness, but also citizenship behavior that would be oriented towards mitigation and adaptation activities.

The results are also in line with the Norm Activation Theory (Schweizer, Davis, and Thompson, 2013) premised on the concept that pro-environmental behavior is activated once the environmental outcomes and personal responsibility are presented to the individual, and he/she begins to experience the effects of the consequences. The difference in the participation and attitudes suggests that the more students are involved in the environmental program, the more they are aware of the impact of climate interventions and their own norm to a greater extent, which makes the students act in a sustainable manner not as a controlling measure, but as a duty. Place-Based Education, in turn, supports the applicability of these findings, too (Schweizer et al., 2013). The active collaboration with the community groups and student participation of the local environmental activities makes climate issues closer and significant in their lives. This is a potential source of the high levels of agreement that climate change is a community problem and that students have a pivotal role to play in fighting this problem. The fact that the environmental programs disaggregate or disconnect the isolation of learning in theory and insert it in a practical situation in the real communities serves to generate a higher level of emotional association, motivation, and a long-term commitment to climate action.

On the whole, these theoretical strategies explain a lot about the research results. Integrations of Social Learning Theory, Environmental Literacy Framework, Climate Citizenship principles, Norm Activation Theory, and Place-Based Education are enough to show that environmental programs among students should not be viewed as an extracurricular activity, but as an educational transformative process. It builds knowledge, affects attitudes and mobilizes personal responsibility and reinforces sustainable behaviors. Therefore, the results confirm the theoretical background of the research and indicate that the active involvement in the environmental activity is among the most significant factors to the formation of a holistic climate change awareness among the learners.

Conclusion and Recommendations

The rate of participation in the environmental programs is high (Mean 3.61, SD = 0.74), is an indication that the student led programs are effective in entailing the learners in the entrepreneurial and viable activities such as tree planting and community participation. It means that the experiential learning encourages some involvement and the acquisition of practical skills. The relatively passive nature of the process of the creation of the awareness campaigns, in its turn, could imply that the activities of the advocacy nature may require additional guidance, mentorship, and confidence-building to encourage the students to be within the role of a leader and take initiatives. These insights could prove useful in the Social Learning Theory as formulated by Bandura in which observation, modeling and social reinforcement lead to the enhancement of participation and adherence to behavior.

This is because the level of climate change knowledge amongst the students is high, and this implies that the attendance to environmental programs influences the cognitive background on climate problems in a positive way. The most rated indicators reveal the perception of the greater societal and environmental impacts of climatic change which have adopted the knowledge with the practice on the ground. The relatively weak understanding on polar ice melting shows that contextual or scientific knowledge may have gaps, thus the curriculum and programs should include more concrete and visual or practical examples of the same in order to increase scientific literacy of the learners. The same is in consonance with the framework of knowledge acquisition and informed decision-making by UNESCO, which emphasizes the relationship between knowledge acquisition and informed decision-making.

The climate change attitude with high rating (Mean = 4.06, SD = 0.74) indicates that the element of student-led program needs to be effective in enhancing positive values, motivational, and personal mission. The fact that the rate of unanimity with relation to individual and collective responsibility towards sustaining the environment is high implies that experience acts to bring about emotional and social investment in climate action. The fact that the identified urgency of climate change was rated the same way only shows that there is a need to improve the knowledge about the urgency of environmental threats. These findings suggest that the more affective aspects of learning (values, concern, and motivation) are supported in activity-based projects and this additional conclusion is supported by the Environmental Literacy Framework and Norm Activation Theory.

The rating of the pro-environment practices also indicates that the knowledge and attitudes are being translated into practical practices, such as the adoption of green practices and participation in carbon reducing activities indicate that the pro-environmental practices have a high rating (Mean = 3.72, SD = 0.83). The fact that the influence on peers and relatives is marginal, suggests that the personal effects of behavior are effective, whereas the social transmission of the pro-environment behavior may require the more orderly peer-based interventions and mentoring. This emphasizes the importance of the place-based and participatory learning which connects thinking and action to local circumstances of students.

Finally, a very good positive relationship that is found between participation and climatic change awareness (Knowledge: $r = 0.570$; Attitudes: $r = 0.535$; Practices: $r = 0.520$; $p = 0.000$), will show that student participation in environmental programs is a highly significant factor that influences climatic awareness among learners. The better participation increases knowledge, creates pro-environmental attitudes and preference towards sustainable behaviors, which proves the hypothesis that the participation, though a secondary process, is an important constituent of learning and behavior change. It concurs with the local and international studies of the applicability of the experiential approach to environmental education, as well as leadership-oriented and participatory, to facilitate climate-resilient youth (Wu, 2023; van de Wetering et al., 2022; Palencia, 2019).

Overall, the findings indicate that the school-based student-led activities can potentially enhance the climate change awareness, leadership potential, and long-term and environmentally responsible behavior. The programs must be most effective and to this end, hands on activities coupled with advocacy and knowledge-based intervention should be counterbalanced and the learner must be capable of having holistic competencies in an attempt to be an informed and motivated environmental steward

There is a high attendance of the student population in the environment programs offered by the school, and the student population, in particular, in group and more importantly practical activities, such as community work, and tree planting in District I of San Fernando in Bukidnon. Knowledge of climate change among the students is also good as well as the attitudes and practices defying that the experiential, participatory programs can be effective in the promotion of environmental literacy and pro-environmental practices. The positive correlation between the engagement of learners in environmental programs and their delegation in climate change awareness is high and justifies the idea that, active involvement is among the most significant factors in generation of knowledge, attitudes and behavior on taking actions towards climate change. Educational intervention represented by student-led environmental programs can serve as a provider of environmental

literacy and leadership, civic engagement and sustainable behavior among young students and this is in line with the social learning theory, environmental literacy framework, and climate change literate citizenship framework.

The students are actively involved in the practical and advocacy based environmental activities that involves awareness training, tree planting, involvement and community mobilization and campaign organization. As a peer mentor, seek to influence other students and the family to become green and strengthen the social value of environmental programs. Take into account the personal environmental behavior, as well as use what they have learned within school curricula into the context of their daily life so as to form sustainable behaviors.

School Administrators and Teachers include in the curriculum programs environmental learning in both the experiential and the participative approach that would ensure that they are balanced on the practical projects and the learning that employs knowledge. Train coach/ mentor students on how to organize advocacy and awareness campaigns, leadership and communication. Monitor and evaluate programs that have been launched by the students routinely by the means of feedback to increase a level of participation, competence and permanency of environmental programs.

The Valencia Colleges Incorporated are joint arrangements with local state schools in San Fernando, Bukidnon to promote an initiative of students on environmental programs, including YES-O programs, tree planting programs, and garbage handling programs. Announce climate literacy and environmental advocacy leadership training and workshops among students and teachers, and learning techniques of participation. Support research experience and service-learning experience where the college students may mentor younger students to assist in bridging academic and applied knowledge of the environment and action. Incentives to continue participating and promote an environmental stewardship culture should also be provided in the form of resource, material and recognition of good student-led projects.

Policy Makers and Educational Authorities institutionalize student-led programs on environmental programs in schools as Climate Change Education (CCE). Facilitate the community involvement and inter-school activities so that to increase the scope and coverage of environmental programs. Have their investment on experiential learning processes and avail to learners regardless of their socio-economic statuses.

As part of the Future Researchers, they create longitudinal studies to establish what happens to climate change awareness and behavior in the short run due to the use of student-led environmental programs. Individuals can investigate some factors that potentially increase or reduce the involvement of students in both advocacy-focused and practical activities. Expand the scope of study to other districts or areas to draw comparisons between the environmental awareness and the engagement in other socio-economic and geographical environments. Exploit the possibility of applying social media and digital tool in student-enabled environmental efforts to identify the effects of these methods on climate literacy and peer pressure.

Through these recommendations, Valencia colleges Incorporated, partner schools and other prospective researchers will have provision to generate a cohort of climate-aware, socially accountable and environmentally active students that are prepared to assume high roles in local and global sustainability programs.

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Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.