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Empowering climate action: the influence of sustainable development goals literacy on Department of Teacher Education students' participation in mitigation efforts

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Abstract: **This study explored the influence of Sustainable Development Goals (SDG) literacy on college students' participation in climate change mitigation activities. Anchored on SDG 4 (Quality Education) and SDG 13 (Climate Action), the research highlights the role of education in fostering environmental awareness and sustainable practices. Using a descriptive-correlational design, purposive quota sampling was employed to survey 100 NSTP-enrolled students from the Department of Teacher Education. Data were collected through questionnaires assessing SDG literacy and participation in climate mitigation initiatives. Results revealed a high mean score for SDG literacy (M = 4.27, SD = 0.47) and similarly high participation in climate mitigation activities (M = 4.12, SD = 0.49). Among the dimensions, social perspective and knowledge of climate change obtained the highest mean scores. Statistical analysis indicated a strong positive correlation between SDG literacy and climate mitigation participation, accounting for 49.1% of the variance. These findings underscore the importance of integrating sustainability-focused education to enhance student engagement in environmental programs.**

Keywords: **SDG literacy, climate change mitigation, teacher education, environmental awareness, SDG 4, SDG 13.**

I. INTRODUCTION

Climate Change has been an urgent problem that has affected entire ecosystems (Bombi, 2021; Weiskopf, 2020), so college students share a role in addressing it (Larsson, 2019), and they have concerns about the ecological problems plaguing the environment. College students can influence their peers and persuade the public; they have taken the lead in addressing social injustice and environmental damage (Larsson, 2019). It is for this reason that the steps youth activists have taken to address climate change have also incentivized others to raise awareness and take action to address the problem (Kowasch et al., 2021; Malhi et al., 2020).

Wagner (2016) emphasizes that literacy is not limited to basic reading and writing but also involves developing the capacity to engage with the social, economic, and environmental challenges outlined in the SDGs. He further notes that strengthening literacy among vulnerable groups is crucial for promoting inclusion and enabling active participation in sustainable development initiatives. Leiva-Brondo et. al. (2022) state that this literacy not only measures how well students recognize and comprehend the SDGs, but also indicates their capacity to apply these principles in real-world contexts, helping them develop critical thinking, responsible citizenship, and proactive engagement in sustainability initiatives within and beyond

the academic setting. It is characterized by the interactions between educators and learners, fostering the normative learning environment that enhances individual responsibility and community engagement (Chen & Shih, 2025).

González-Salamanca et al. (2020) highlight that SDG 4 quality education develops the knowledge, skills, and values that students need to promote sustainability. Morales-Aguilar et al. (2025) emphasize that teacher education programs that integrate sustainability and climate concepts empower pre-service teachers to act as change agents and mobilize community mitigation efforts. Similarly, Setyoningsih et al. (2024) show that educational programs that foster critical and digital literacy increase students' confidence and encourage active engagement in real-world climate mitigation projects.

Promoting sustainable development literacy among students through deliberate strategies integrating awareness of the SDGs empowers learners with the competency to contribute meaningfully to sustainable practices and climate action (Brin et al., 2023). Oghenekohwo and Frank-Oputu (2017) assert that literacy education serves as a cornerstone of sustainable development in knowledge-based societies, equipping individuals with skills, reshaping values, and fostering positive attitudes, all of which are key to achieving the Sustainable Development Goals. Hanemann and Robinson (2022) argue that we must reconceive effective SDG literacy through the lens of lifelong learning, integrating it into people's broader learning goals and ensuring its continuity across the lifespan to unlock its full transformative potential for sustainable development.

Jimlan and Arias (2025) found that community leaders in Aklan demonstrated a high level of environmental literacy that strongly correlates with their competence in understanding and engaging with the Sustainable Development Goals, suggesting that environmental literacy serves as a powerful foundation for SDG literacy. Alvero (2025) reports that college students at San Pablo Colleges strongly agreed on the importance of the SDGs in education and perceived their integration into curricula and activities positively, which empowered them to contribute to sustainable development within their communities. Recent Philippine studies highlight that fostering environmental and SDG literacy across sectors of society is crucial for cultivating empowered individuals and communities capable of driving sustainable change (Gatan, Yangco, & Monterola, 2021).

A study by Bedico et al. (2024) found that greater awareness of SDG 13 led to more eco-conscious behaviors, especially among youth, in taking part in climate-related efforts. In higher education, students informed about SDG 13 are more likely to join initiatives such as environmental clubs and clean-up drives, suggesting that SDG literacy effectively boosts participation in climate mitigation. In addition, Licudine and Salva (2024) emphasized that the teaching skills and physical literacy of college physical education instructors play a key role in advancing the Sustainable Development Goals (SDGs), as well-prepared educators can promote inclusive, critical, and health-oriented learning experiences that strengthen sustainability. Moreover, Cabrera and Lee (2018) demonstrated that flood-prone areas in Davao Oriental are increasingly at risk due to climate change, highlighting the urgency of improving climate and SDG literacy to enable communities to understand these risks and participate in adaptation planning.

The study by Afroz and Ilham (2020) assesses university students' knowledge, attitudes, and practices (KAP) regarding the Sustainable Development Goals (SDGs) to determine their awareness and engagement with global sustainability efforts. It finds that, while students generally have positive attitudes toward the SDGs and acknowledge their importance, there are gaps in detailed knowledge and consistent pro-SDG behaviors. The research highlights the need for enhanced educational interventions in higher education to improve students' comprehensive understanding and active participation in sustainability practices, reinforcing the role of academic institutions in fostering SDG literacy and commitment to sustainable development.

Khan and Priatna (2024) accentuate the essential role of education and educational institutions in climate change mitigation and achieving UN SDG 13: Climate Action. It emphasizes that education equips individuals and communities with the knowledge, skills, and attitudes necessary to understand climate issues and take effective action. The study advocates integrating climate education into curricula, focusing on experiential, action-oriented learning to empower learners. Education is seen as a transformative tool that fosters environmental awareness, behavior change, and community mobilization, all of which are crucial for reducing greenhouse gas emissions and adapting to climate change challenges.

In 2015, the 2030 Agenda for Sustainable Development and the Paris Agreement were adopted to create a resilient, productive, and healthy world (Zhenmin & Espinosa, 2019). The 2030 Agenda established 17 Sustainable Development Goals (SDGs) addressing social, environmental, economic, and governance issues, while the Paris Agreement set a legally

binding framework to reduce greenhouse gas emissions and limit global warming to well below 2°C (UNFCCC, 2023). Climate change is linked to all dimensions of development; pursuing the SDGs and climate goals must be done together by minimizing trade-offs and maximizing synergies (Gomez-Echeverri, 2018). However, the limited timeframe and the scale of required transformations in energy, land, industry, and waste sectors demand urgent and coordinated action (Soergel et al., 2021).

In addition, the study by Cabras and Israel (2024) examines the relationship between attitudes toward climate change and biodiversity conservation practices among senior high school students, with a focus on the mediating role of environmental sustainability awareness. The study demonstrates a significant positive relationship between climate change attitudes and biodiversity conservation practices and confirms that environmental sustainability awareness partially mediates this relationship. This implies that heightened awareness of environmental sustainability enhances the influence of positive climate attitudes on proactive biodiversity conservation behaviors among students, highlighting the importance of environmental education in fostering sustainable practices.

Climate change mitigation is a critical global priority aimed at reducing greenhouse gas emissions and limiting the severity of climate-related impacts. As outlined by the Intergovernmental Panel on Climate Change (IPCC, 2023), its goal is to transition to renewable energy, improve energy efficiency, reforest, and adopt sustainable consumption patterns. It aims not only to help reduce emissions but also promote long-term economic stability and public health and wellness (Landrigan et. al., 2024; UNFCCC, 2022). Economic considerations can influence participation in mitigation, as individuals may weigh financial trade-offs alongside environmental benefits (Valencia et. al., 2024).

Forage crops in Eastern Africa are an effective nature-based solution for climate change mitigation, enhancing carbon sequestration through improved soil health, above-ground biomass, and biodiversity (Desta, 2025). Cities are central to climate change mitigation because they drive the adoption of low-carbon development strategies. Recognizing their role highlights the importance of urban action in reducing global emissions (Mi et al., 2019). The adoption of sustainable agricultural practices such as integrated pest management, precision agriculture, and methane recovery systems in Malaysian palm oil plantations significantly enhances biodiversity, water quality, and greenhouse gas reduction, thereby contributing to climate change mitigation (Yeoh et al., 2025).

Additionally, Pollock and Kantorski (2025) propose that integrating climate change mitigation into comprehensive youth mental health education can empower adolescents to navigate the psychological stress induced by climate-related uncertainties. Justine and Seenath (2025) discuss how vegetative nature-based solutions such as mangroves, saltmarshes, and seagrasses can significantly reduce wave energy and storm surge effects, aiding coastal flood risk management. Bania et al. (2025) demonstrate bamboo ecosystems as a scalable nature-based solution for climate change mitigation that leverages deep-soil processes to sequester carbon effectively.

Mangroves play a crucial role in climate change mitigation by providing shoreline protection and storing carbon through their extensive root systems (Cuenca-Ocay, 2019). Asilo and Dejeto (2025) highlight that while sustainable conservation and reforestation efforts are essential, afforestation initiatives should also be recognized as a significant strategy for managing and mitigating the effects of climate change. Based on exploratory factor analysis from a representative sample in Quezon Province, the Climate Change Mitigation Practices Scale (CCMPS) reveals distinct dimensions of mitigation practices, offering targeted insights for designing behavioral interventions (Baudin, Quinto, & Saluta, 2024). Findings show that knowledge of climate change and hands-on participation in activities such as tree planting and waste management increase youth engagement in mitigation (Sentosa et al., 2024).

A study conducted by Macapayad (2023) in Davao Region explored the dimensions of community participation in climate change mitigation and adaptation initiatives. Findings revealed three main dimensions: empowering communities, promoting sustainability and resilience, and enhancing accountability and transparency, which together strengthen local involvement in climate actions. Understanding SDGs enables communities to recognize the importance of proactive climate action and practical strategies such as the flood mitigation measures proposed for NHA Bangkal, Davao City (Villaver & Miano, 2020). Youth engagement is also enhanced when students access reliable climate information through social media platforms, which fosters advocacy and literacy (Ojala & Hallgren, 2022).

Shove's Social theory analysis of climate change often focuses on a few slow-moving, essentially traditional issues, despite the gravity of what many perceive as an impending disaster of extraordinary scale (Leal Filho et al., 2022). One key aspect is how societal norms are defined and constructed in relation to climate change. Similar to numerous writers before them, Cíbik (2025) highlights how climate change is framed as a subject of public, scientific, and policy attention, revealing the political, moral, and ethical ramifications involved in these processes. This approach emphasizes the role social theory plays in understanding the complex societal dimensions of climate change.

Bronfenbrenner's Ecological Systems Theory explains human development through interactions across environmental layers, from family and peers to culture and policies (Guy-Evans, 2025). Using a quantitative approach, the study measures how factors at these levels influence learners' SDG literacy and participation in climate change mitigation through knowledge scores and reported sustainable practices.

There is a significant research gap concerning how Sustainable Development Goals (SDGs) literacy specifically influences college students' participation in climate mitigation activities. While many studies focus on general climate literacy or environmental awareness, few explicitly examine the effect of knowledge about the SDGs on student engagement in concrete climate action. The existing literature shows variation in student participation linked to institutional commitment and the mode of SDG education, such as courses, workshops, or extracurricular activities. However, it lacks comprehensive insight into why some institutions foster greater involvement than others. Additionally, demographic factors, such as level of study and cultural context, as well as structural barriers, such as curriculum integration and faculty expertise, remain underexplored in shaping both SDG literacy and students' participation in climate action.

Furthermore, the mechanisms through which SDGs literacy leads to actual behavior change in climate mitigation are not well understood. Studies involving service-learning projects indicate that such experiential approaches can enhance students' SDG literacy, foster sustainable attitudes, and empower them to take environmentally responsible actions, including reducing resource consumption and advocating for sustainability in their communities.

However, causal links between literacy acquisition and sustained climate-positive behaviors need more empirical research. All things considered, focused research is essential to distinguish SDG literacy from general sustainability awareness, identify effective educational interventions in higher education, and address institutional and equity factors that affect students' involvement in climate mitigation projects. Within the scope of sustainable development, one of the most significant debates concerns the need and urgency to incorporate the SDGs into education, particularly higher education institutions (Alcántara-Rubio et al., 2022). This can better inform policies to cultivate empowered, literate students who actively contribute to achieving the SDGs.

This study is anchored in the principles of SDG 4 (Quality Education) and SDG 13 (Climate Action). SDG 4 emphasizes the role of quality and inclusive education in developing the knowledge, skills, and values necessary for individuals to understand and address global challenges. Through education, students become more aware of sustainability issues and are encouraged to engage in responsible environmental practices. In relation to this, SDG 13 highlights the urgent need to take action to combat climate change and its impacts by promoting awareness, mitigation strategies, and collective participation.

This research is significant because it examines how knowledge of the Sustainable Development Goals (SDGs) influences college students' involvement in climate change mitigation. The study examines whether youth take concrete action when they are informed about the SDGs, recognizing them as future leaders and key players in sustainability. For *students*, it highlights how SDG literacy shapes their attitudes and daily practices, motivating them to participate in climate programs, adopt eco-friendly habits, and inspire their peers. For *schools*, the findings can help strengthen lessons, projects, and campus initiatives that go beyond theory and encourage students to make real contributions to environmental protection. This study may guide *policymakers and institutions* in designing programs, campaigns, and policies that support climate education and student-led sustainability efforts. *Communities*, in turn, benefit from youth who are not only aware of global goals but also capable of driving local climate solutions such as waste reduction, resource conservation, and advocacy. Finally, this study contributes to academic discussions on sustainability education and can serve as a foundation for the *future researchers* exploring how SDG literacy translates into lasting pro-environmental behavior.

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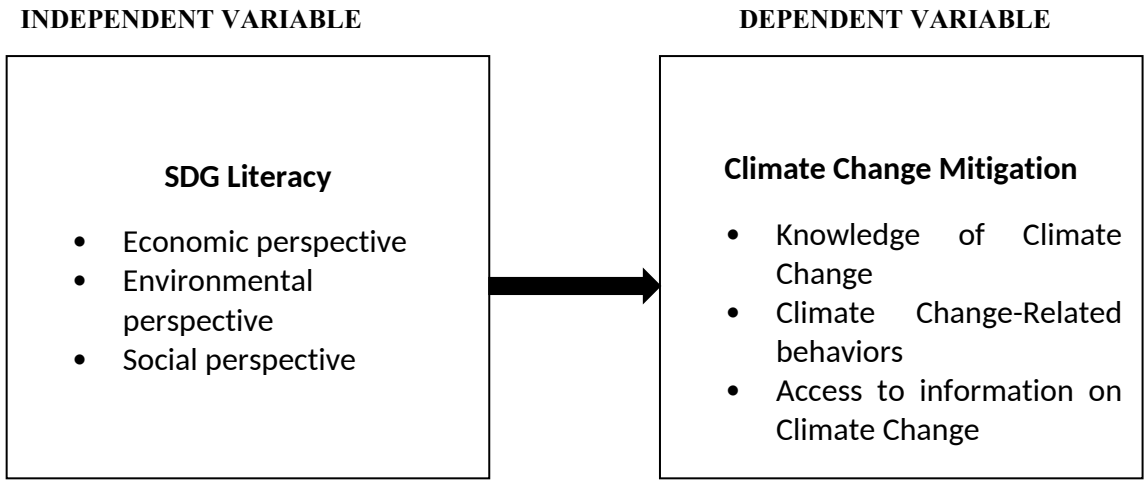

Figure 1. Relationship between Sustainable Development Goals Literacy and Climate Change Mitigation

This study aimed to analyze the impact of Sustainable Development Goals (SDG) literacy on college students' participation in climate mitigation activities. Specifically, the study sought to: (1) determine the level of Sustainable Development Goals (SDG) literacy among college students; (2) assess the extent of their participation in climate mitigation activities; and (3) ascertain the relationship between SDG literacy and participation in such activities.

The researchers developed a null hypothesis that there is no significant relationship between Sustainable Development Goals (SDG) literacy and climate change mitigation activities among college students at the 0.05 significance level.

The study involved 100 first-year college students enrolled in the National Service Training Program (NSTP) under the Department of Teacher Education at UM Panabo College. Respondents were selected using purposive quota sampling, which ensured representation of meaningful subgroups while focusing on specific inclusion criteria: currently enrolled at UM Panabo College, first-year status, and active NSTP enrollment. Exclusion criteria ruled out students outside these parameters. This sampling approach enhanced credibility and diversity of data on SDG literacy and climate mitigation participation.

Two adopted questionnaires served as the primary instruments. The first, based on Crespo-Martín et al. (2025), measured SDG literacy across environmental, social, and economic perspectives using 39 Likert-scale items. The second, adopted from the UNDP (2016) Knowledge, Attitudes, and Practices Study, assessed climate mitigation participation through 31 items covering knowledge, behaviors, and access to information. Together, the instruments comprised 70 items. Expert validation, pilot testing, and reliability analysis confirmed strong internal consistency (Cronbach's alpha: 0.962 for SDG literacy; 0.938 for climate participation). Statistical tools included mean scores to determine literacy and participation levels, and Pearson's r to examine correlations.

A descriptive-correlational quantitative design guided the study, combining descriptive assessment of SDG awareness and climate action involvement with correlational analysis of their relationship. After securing institutional approval, surveys were administered in a controlled campus setting, with informed consent obtained from all participants. Completed questionnaires were collected within two days, tallied, and analyzed by a licensed statistician. Confidentiality was strictly maintained, ensuring anonymity of respondents and secure handling of data. This design allowed objective measurement of naturally occurring variables and identification of significant patterns linking SDG literacy with climate mitigation participation.

II. BODY OF ARTICLE

This study shows the level of Sustainable Development Goal (SDG) literacy among DTE students in UMPC. This was evaluated based on the 39-item questions the respondents voluntarily answered. As the independent variable, SDG literacy attained a grand mean of 4.27, which is considered high. This indicates that students regularly demonstrate awareness and understanding of the Sustainable Development Goals. As shown in Table 1, students' perceived level of SDG literacy is high ($x = 4.27$; $SD = 0.47$), suggesting that they possess the knowledge and comprehension necessary to engage effectively in activities related to sustainable development.

Table 1. The Level of Sustainable Development Goals (SDG) literacy among DTE students in UMPC

Indicator	Mean	SD	Descriptive Equivalent
Economic Perspective	4.14	0.51	Agree
Environmental Perspective	4.38	0.52	Strongly Agree
Social Perspective	4.31	0.54	Strongly Agree
Grand Mean	**4.27**	**0.47**	**Strongly Agree**

As indicated in Table 1, the Environmental Perspective indicator attained the highest mean of 4.38 and SD of 0.52, equivalent to the description of Strongly Agree. This suggests that emphasizing environmental dimensions such as ecosystem protection, biodiversity conservation, and greenhouse gas reduction is particularly effective in strengthening public awareness of climate change mitigation and motivating proactive engagement in environmental sustainability initiatives. The highest mean score was gathered for Item 1: "I believe that a clean air environment is good for my health," with a mean of 4.82, indicating that respondents strongly agree. In contrast, the lowest mean was observed for Item 10: "Human activity has negative effects on the climate," with a mean score of 4.14, indicating that respondents agree and suggesting that there is still room for improvement in community infrastructure and environmental initiatives.

This study emphasizes the importance of incorporating sustainability concepts and fostering environmental awareness in educational programs, directly linking them to nature conservation education (Wals et al., 2024). There is a significant distinction: environmental conservation education goes beyond concerns with nature, ecology, and biodiversity, with a primary focus on environmental damage, pollution, environmental health, and other issues closely related to how we live, create, and consume. This is supported by Valderrama et al. (2025), who state that environmental education is essential for students to develop an increased interest in eco-related topics.

The "Social Perspective" indicator recorded the second-highest mean of 4.31 and SD of 0.54, corresponding to a descriptive equivalent of Strongly Agree. This suggests that emphasizing social dimensions such as community impacts, equity, and collective responsibility is particularly effective in fostering public understanding of climate change mitigation and encouraging active participation in related programs. The highest mean score was recorded for Item 1: "I consider that having good individual health is beneficial for society," with a mean of 4.54, indicating that respondents strongly agree. On the other hand, the lowest mean was observed for Item 9: "I participate in waste collection campaigns from riverbanks, reservoirs, or beaches," with a mean score of 4.01, indicating that respondents agree. This suggests the need to encourage greater community involvement and to promote programs that translate environmental awareness into action.

Strong political and social support for climate change mitigation is essential (Tan et al., 2023) as it enables individuals already engaged in mitigation efforts to respond more effectively while motivating wider public participation through targeted communication and empowerment strategies. The perspective-related indicators yielded a mean of 4.27, indicating strong overall agreement or concern, highlighting how diverse viewpoints across economic, environmental, and social dimensions significantly shape perceptions of the climate crisis. Grant, Jorgenson, and Longhofer (2018) provide evidence of societal structures, organizational practices, and policy decisions. This supports the social perspective indicator of how human behavior, institutional frameworks, and collective decision-making shape environmental outcomes, highlighting the role of social and organizational factors in climate mitigation efforts.

The Economic Perspective indicator had the lowest mean of 4.14 and SD of 0.51, with a descriptive equivalent of 'agree,' suggesting that economic considerations can become a concern for respondents when evaluating approaches to climate change mitigation. This finding reflects a greater emphasis on non-monetary values or awareness that social and environmental benefits outweigh short-term economic trade-offs in shaping attitudes toward mitigation. The item in the economic perspective with the highest mean of 4.42 is Item 7: "I reuse objects that I can, to save money," with a descriptive equivalent of strongly agree. On the contrary, Item 9: "I consume fish that has been sustainably caught even if it is more expensive," possesses a mean of 3.73 with a descriptive equivalent of agree, which is the lowest among the items on the

Economic Perspective indicator. This could mean that some respondents might be lenient towards SDG initiatives so long as it does not financially inconvenience them.

This is supported by Valencia et. al. (2024) and Yucel et. al. (2023), with the former positing that carbon regulations depend heavily on public support, which can benefit from them. The latter also implies that individuals with higher income levels have a more favorable disposition towards sustainable development practices. However, Arnoldossen et al. (2022) showed that consumers are also willing to pay a higher price for products so long as they are produced ethically and sustainably.

Climate change mitigation is often viewed through the lens of incentive structures and resource allocation (Yan et. al., 2023). Rather than relying solely on social willpower, this perspective emphasizes that well-designed fiscal policies, such as carbon pricing or green subsidies, are what truly scale mitigation efforts by making sustainable choices more financially attractive. By internalizing environmental costs, governments can align private profit motives with public ecological goals, transforming climate action from a moral obligation into a market-driven necessity.

These results underscore the value of integrating multifaceted perspectives, particularly social perspectives, into climate change mitigation strategies to enhance public engagement and support, while addressing potential economic barriers through complementary policy design (Islam & Kieu, 2021).

Table 2. The Level of Participation in Climate Change Mitigation Activities Among DTE Students in UMPC

Indicator	Mean	SD	Descriptive Equivalent
Knowledge of Climate Change	4.34	0.51	Strongly Agree
Climate Change-Related Behaviors	4.04	0.64	Agree
Access to Information on Climate Change	3.99	0.66	Agree
Grand Mean	**4.12**	**0.49**	**Agree**

This study shows that students in DTE are highly engaged in climate change mitigation activities. This was evaluated based on the 31-item questions the respondents voluntarily answered. The dependent variable, participation in these activities, attained the grand mean of 4.12, which is considered high. This means the respondents regularly exhibit it. As shown in Table 2, the perceived effects of participation in such activities among students are classified as strongly agree and a grand mean of 4.12 and SD of 0.49, indicating that students agree that these activities significantly contribute to mitigating climate change.

As shown in Table 2, the indicator "Knowledge of Climate Change" has the highest mean, with a descriptive equivalent of Strongly Agree and an overall result mean of 4.34 and SD of 0.51. The findings indicate that students demonstrate a high level of awareness of climate change and recognize it as a present and serious issue. The highest mean score was recorded for Item 1, "I believe climate change is currently happening," with a mean of 4.34 and a descriptive equivalent of strongly agree. In contrast, the lowest mean was observed for Item 3, "I believe that every individual can take actions to adapt to climate change," with a mean score of 3.73, indicating that respondents strongly agreed. The results suggest that while students strongly acknowledge the existence of climate change, there is comparatively less confidence in their individual capacity to adapt to its impacts. However, the overall scores remain positive, indicating that students generally possess awareness not only of climate change as a phenomenon but also of the potential role individuals can play in addressing it.

Educational interventions involving hands-on activities, such as tree planting, waste management, and environmental projects, have been found to increase students' motivation and sense of responsibility toward climate change mitigation (Sentosa et al., 2024). Individuals with higher climate knowledge and self-efficacy are more likely to take proactive adaptive actions (Ung et al., 2016). Moreover, greater climate knowledge has been linked to increased public engagement in mitigation and adaptation efforts (Pan et al., 2023).

The "Climate Change-Related Behaviors" indicator obtained the second-highest overall mean of 4.04 and SD of 0.64, associated with a descriptive equivalent of Agree. This suggests that students consistently engage in climate change mitigation activities and regularly practice pro-environmental behaviors in their daily lives. Notably, Item 7, "I have turned off water taps or pipes when not in use," obtained a mean score of 4.46, which is descriptively interpreted as strongly agree. In contrast, Item 3, "I have helped build or repair seawalls," recorded the lowest mean of 3.68, which is descriptively interpreted as agree. This comprehensive elevated mean emphasizes consistent, tangible contributions to environmental protection, with widespread adoption of simple conservation habits. It indicates high overall participation in mitigation activities, highlighting the potential for behavioral indicators to track youth engagement effectively while pinpointing targeted areas for improvement, such as collaborative projects.

Kamaludin et al. (2021) affirm that youths' attitudes and practices regarding conservation efforts show a strong positive relationship, emphasizing hands-on activities to foster lifelong environmental commitment, while Sigit et al. (2020) demonstrate that youth knowledge, attitudes, and practices toward ecosystem protection are strongly correlated, with experiential learning driving active participation. Lastly, Masud and Al-Amin (2016) apply the Theory of Planned Behavior to link youth intentions empirically to real-world conservation success through attitudes, norms, and perceived control.

The third indicator, "Accessing Climate Change Information," had the third-highest mean and is interpreted descriptively as indicating that respondents agree overall mean of 4.12 and SD of 0.66, suggesting that students generally seek and obtain climate change information through various available sources. Preeminent item, number 9 "I access information about climate change from Facebook," recorded with a mean of 4.45 and a descriptive equivalent as strongly agree, emphasizing its dominance as a go-to platform. In contrast, Item 8, "I access information about climate change from Skype," recorded the lowest mean score of 3.48, which is descriptively interpreted as agree, indicating lower utilization than the other items despite overall solid participation. This shows that students regularly seek out climate information, which builds their awareness and encourages them to take actions to protect the environment. They clearly prefer easy-to-use social media like Facebook over other options like Skype. This pattern confirms that digital platforms significantly motivate young people to act on climate change. At the same time, it points to the need for more varied and trustworthy information sources to avoid relying too much on a single platform like Facebook.

Ojala and Hallgren (2022) illustrate how youth climate concerns emerge from social representations in online sources, nurturing literacy and advocacy. Furthermore, Lusambili et al. (2025) highlight social media platforms such as Facebook as primary youth channels amid misinformation challenges, stressing the need for verified access. Lastly, Shaari and Abdul Basir (2024) demonstrate that environmental involvement and media exposure, within the Theory of Planned Behavior, strengthen attitudes, subjective norms, perceived behavioral control, and pro-environmental behaviors.

Table 3: Significant Relationship Between Sustainable Development Goals Literacy and Climate Change Mitigation

Variable	Mean	SD	Description	r-value	p-value	Decision
Sustainable Development Goals Literacy	4.27	0.47	Independent Variable			
				0.701	0.000	Ho is Rejected
Climate Change Mitigation	4.12	0.49	Dependent Variable			

R= 0.701; R^2 = 0.491

Table 3 presents the statistical relationship between Sustainable Development Goals (SDG) literacy and climate change mitigation. The mean score for SDG literacy is high, with a mean of 4.27 and a SD of 0.47, indicating that respondents demonstrate a strong understanding of the SDGs. Climate change mitigation also obtained a high mean score, with a mean of 4.12 and a SD of 0.49, showing that respondents frequently engage in mitigation practices. The computed r-value of 0.701 signifies a strong positive correlation between the two variables. The p-value of 0.000 indicates statistical significance. The coefficient of determination shows that 49.1% of climate change mitigation is explained by SDG literacy, while 50.9% is influenced by other variables not included in the study.

The findings indicate that higher levels of SDG literacy are associated with greater participation in climate change mitigation activities. The rejection of the null hypothesis confirms that SDG literacy significantly influences mitigation practices. The strong positive correlation suggests that as students' knowledge and understanding of the SDGs increase, their involvement in climate-related actions also increases. Nearly half of the variation in mitigation practices can be explained by SDG literacy, which highlights its substantial contribution.

SDG literacy extends beyond awareness of global goals. It involves understanding social, economic, and environmental issues and applying this knowledge in real-life contexts. Students who are knowledgeable about the SDGs are more likely to practice responsible consumption, participate in environmental initiatives, and support sustainability programs. Literacy strengthens critical thinking and encourages responsible citizenship. College students possess the capacity to influence peers and communities, placing them in a strong position to promote environmental responsibility and collective action. When students internalize sustainability principles, they become active contributors to climate solutions rather than passive observers.

Education plays a central role in shaping environmental behavior. Institutions that integrate SDG concepts into curricula create opportunities for experiential and action-oriented learning. Students develop not only knowledge but also the skills and attitudes necessary for climate action. Climate change mitigation, as defined by the Intergovernmental Panel on Climate Change (IPCC, 2023), includes transitioning to renewable energy, improving energy efficiency, implementing reforestation, and adopting sustainable consumption patterns. Understanding these strategies enables students to recognize their individual and collective roles in reducing greenhouse gas emissions.

Larsson (2019) explains that college students can influence their peers and the wider public to address social injustice and environmental concerns. Wagner (2016) describes literacy as the capacity to critically engage with the social, economic, and environmental dimensions of the SDGs, emphasizing its role in inclusion and active participation. Leiva-Brondo et al. (2022) state that SDG literacy reflects students' ability to apply sustainability principles in real-world situations, fostering critical thinking and responsible citizenship. Jimlan and Arias (2025) found that environmental literacy strongly correlates with SDG competence, identifying it as a foundation for sustainable engagement. Bedico et al. (2024) reported that awareness of SDG 13 encourages youth participation in environmental initiatives such as clean-up drives and sustainability programs. Khan and Priatna (2024) highlight that education equips individuals with the knowledge, skills, and attitudes necessary for effective climate action and advocate for integrating climate education into academic curriculum.

These findings reinforce the significant relationship identified in this study. SDG literacy equips students with both understanding and motivation, which translates into meaningful participation in climate change mitigation efforts within academic institutions and the broader community (Kolenatý, Kroufek, & Činčera, 2022).

III. CONCLUSION

Climate change is an urgent problem that needs to be addressed, and it is also the role of college students to help address this issue. Due in part to their ability to affect their peers, as well as being at the forefront of social issues and environmental issues. This study aimed to determine the level of SDG literacy among DTE students, assess the extent of their participation in climate mitigation activities, and ascertain the relationship between SDG literacy and participation in such activities.

This study examined the level of Sustainable Development Goals literacy and its relationship to participation in climate change mitigation among DTE students at UMPC. The findings reveal that students possess a high level of SDG literacy, particularly in the social and environmental perspectives. This indicates that students strongly recognize the social impacts, collective responsibility, and environmental consequences of climate change, while economic considerations are given comparatively less emphasis.

The level of participation in climate change mitigation activities among the respondents was also high. Students demonstrated strong knowledge of climate change and regularly engaged in climate-related behaviors, especially simple ones within their immediate capacity, such as resource conservation. However, participation in more complex or large-scale mitigation activities remained limited, suggesting gaps in opportunities, resources, or confidence in individual adaptive capacity.

Most importantly, the study established a strong and statistically significant relationship between Sustainable Development Goals literacy and climate change mitigation. The results confirm that higher SDG literacy is associated with greater participation in mitigation activities, with nearly half of the variance in mitigation behavior explained by SDG literacy. This

underscores the critical role of education in shaping pro-environmental behavior and supports the view that informed students are more likely to engage in meaningful climate action.

The following implications and recommendations were drawn from the results and discussion presented in the study. The findings indicate that students participate more in individual climate actions than in collective initiatives, and that they access climate change information mainly through digital platforms. Students are therefore encouraged to engage in both individual and community-based mitigation activities actively. They should also critically assess and apply information from digital platforms to promote responsible climate action and awareness. Data show that students rated the economic perspective in SDG literacy the lowest, indicating a need for a more balanced understanding of climate issues. Schools and higher education institutions should integrate SDG 4 (Quality Education) and SDG 13 (Climate Action) together, helping students develop the knowledge, skills, and values to address social, environmental, and economic challenges in real-world contexts. They should provide experiential learning opportunities, such as hands-on projects and community-based programs. Encouraging students to participate beyond individual actions can strengthen collective engagement. Schools can also support environmental clubs and campaigns to sustain student interest in climate initiatives. Policymakers and institutions should strengthen the emphasis on hands-on, activity-based learning in NSTP and CWTS while maintaining essential theoretical foundations, in line with the purpose of Republic Act No. 9163. They can engage students in environmental campaigns, disaster preparedness programs, sustainability initiatives, and other civic engagement projects in partnership with local government units and environmental organizations. They should allocate sufficient funding, provide clear implementation guidelines, and establish supportive monitoring systems to ensure that students actively participate in meaningful and measurable activities. By prioritizing experiential learning and concrete action, policymakers and institutions can help students apply classroom knowledge to real-world civic responsibility and climate mitigation efforts. Communities play a key role in promoting sustainable practices and awareness. Schools and student organizations should collaborate with local communities to implement environmental programs. Community-based campaigns can encourage collective responsibility for climate action. By involving residents in sustainability initiatives, communities can create a culture of environmental stewardship. These collaborations strengthen both education and practical action on climate change. The study shows a strong link between SDG literacy and climate change mitigation. Future researchers are encouraged to explore other variables. Expanding studies to other academic programs or institutions can provide broader insights. Investigating long-term impacts of educational and community initiatives can guide more effective interventions. These studies can inform policies and strategies that enhance student engagement in climate action.

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