

The Role of Educational Programs and Student Organizations in Promoting Green Practices in Higher Education

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ABSTRACT:

Addressing global environmental issues such as climate change, waste production, and resource depletion has made it crucial for both individuals and institutions to adopt sustainable practices. This study took a closer look at how educational programs and student organizations can help promote and establish green practices at a university in the Philippines. We used a quantitative descriptive approach to gather insights from 721 respondents across different academic units at the Isabela State University–Cauayan City Campus. This study focused on understanding awareness levels, behavioral engagement, organizational participation, motivating factors, and perceived challenges related to sustainability efforts. The findings showed strong engagement in green practices, especially in areas such as energy conservation and waste segregation, suggesting that people consistently adopt these routine and accessible behaviors. Awareness of visible sustainability efforts, such as waste management facilities, was high, but awareness of broader institutional campaigns was only moderate. Personal values and environmental concerns are the main drivers of pro-environmental behavior, emphasizing the role of intrinsic motivation. Further analysis revealed that awareness, motivation, and participation in organizations are significant predictors of green practices, with awareness being the most influential. Student organizations were found to be key players in promoting sustainability through peer-led initiatives. However, challenges such as limited facilities, uneven awareness, and lack of institutional support still exist. These findings highlight the need for a comprehensive strategy that combines curriculum, student involvement, and institutional policies to enhance sustainability practices in higher-education institutions.

Keywords: Educational Programs, Environmental Awareness, Green Practices, Higher Education Institutions (HEIs), Pro-environmental Behavior, Student Organizations, Sustainability

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Introduction

Today, we face significant environmental challenges, such as climate change, waste, and resource depletion. These issues demand attention, both individually and societally, making

sustainability a global priority. To address these problems, we must change our behaviors at the personal, organizational, and societal levels to act responsibly towards the environment in the long term. Higher Education Institutions (HEIs) play

a crucial role in promoting sustainability, as they are uniquely positioned to educate, research, and lead communities. By integrating sustainable development goals (SDGs) into curricula, HEIs raise awareness and encourage environmentally friendly behavior, boosting sustainability literacy and fostering responsible citizenship. For example, a study at the University of Jordan found that including SDGs in education increased students' awareness and engagement in pro-environmental actions (Al Husban, 2025). Moreover, HEIs shape values and promote long-term behavioral changes by developing critical skills such as systems thinking and strategic approaches to sustainability education (Muhonen et al., 2024). Despite governance and policy challenges, these institutions innovate in teaching and foster cultures that support sustainability (Bui et al., 2024). Universities serve as platforms for promoting environmental stewardship and sustainable development. On campus, green practices such as energy conservation, waste segregation, and reducing paper and plastic use bring sustainability principles to life. Visible initiatives encourage students to adopt eco-friendly habits, such as recycling. Green campus efforts, such as sustainable food services and recycling, significantly boost students' intentions to adopt green behaviors (Al-Dmour, 2023; Chen et al., 2025). Challenges in awareness and management highlight the need for university management and community involvement in achieving sustainable goals (Mohd Muhiddin et al., 2023). Educational programs drive sustainable behavior by embedding sustainability science into curricula and enhancing environmental awareness and responsibility. Courses such as Science, Technology, and Society and Disaster Risk Reduction and Climate Change offer structured sustainability education. Extracurricular activities and workshops boost student engagement and understanding of sustainability challenges, bridging theory and action (Chen et al., 2025; Papavasileiou et al., 2025). These practices and educational efforts nurture a culture of environmental stewardship that is essential for sustainable campuses.

Student organizations are crucial for promoting sustainability, leading peer-driven initiatives, developing leadership skills, and advocating environmental causes. By organizing activities with green practices, sustainability is embedded as a core institutional value. Student engagement and collective action significantly enhance the reach and longevity of environmental efforts. Green behavior is influenced by personal values, environmental awareness, institutional policies, and infrastructure. However, challenges such as limited facilities, varying awareness, and a lack of institutional support can hinder sustained green practices. Understanding these motivations and obstacles is vital for creating effective and scalable interventions in academic settings. Despite increased sustainability initiatives, limited empirical evidence exists on how educational programs and student organizations collaborate to promote and institutionalize green practices in higher education institutions (HEIs) in the Philippines. Research often separates these areas, overlooking their combined impact on sustainability issues. This study aims to address this gap by examining the awareness, behaviors, organizational roles, motivations, and challenges related to green practices among students and institutions. It seeks to provide evidence-based insights to guide the development of effective, scalable sustainability strategies, enhancing the collaborative roles of education and student-led actions in embedding environmental responsibility in Philippine higher HEIs.

Research Questions

This study aimed to evaluate the role of educational programs and student organizations in promoting and institutionalizing green practices in higher education institutions. Specifically, this study sought to answer the following research questions:

1. What is the level of awareness, participation, and behavioral engagement of students, faculty, and student organizations in campus green practices and sustainability-related initiatives?
2. What factors influence the adoption of green practices among members of the university

community, particularly in terms of personal values, environmental awareness, institutional policies, peer influence, and incentives?

3. To what extent do student organizations contribute to the promotion and institutionalization of green practices through their activities, programs, and operations?

4. What educational interventions, institutional strategies, and resources are perceived as most effective in strengthening and sustaining green practices, and what challenges hinder their successful implementation within the university?

Review of Related Literature

Sustainability and Green Practices in Higher Education

Higher Education Institutions (HEIs) worldwide are stepping up to promote sustainability. They are doing this through green campus initiatives and various efforts to protect the environment. Research shows that many universities have a range of sustainability programs aimed at saving energy, reducing waste, and managing resources as part of their daily operations. For example, consider the Durban University of Technology. They focus on successful stakeholder engagement and resource conservation as key components of their Green Campus Initiatives (GCIs). This highlights the importance of formal environmental policies and integrated sustainability education (Shange et al., 2025). Similarly, public universities in Malaysia are actively rolling out green campus programs to tackle global warming, although they face challenges in management and community involvement (Mohd Muhiddin et al., 2023). In Russia, the focus is on education, research, transportation, and waste management. However, there is a noticeable gap between management-driven initiatives and student awareness, indicating the need for more inclusive engagement (Ali & Anufriev, 2020). Globally, HEIs are adopting sustainability pathways that integrate environmental, social, and economic dimensions. International and regional networks are mainly pushing for "greening" strategies that connect people, the planet, and profit, while also

encouraging deeper societal engagement and critical reflection on sustainability discourse (Ruiz-Mallén & Heras, 2020). Overall, these efforts position universities as vital players in embedding sustainable development in society through education, research, and community outreach.

Pro-Environmental Behavior of Students and Faculty

There is a discernible correlation between the environmental knowledge of students and faculty and their eco-friendly behavior. However, a notable disparity often exists between awareness of environmental issues and the implementation of actions to address them. For example, at Shaqra University, students exhibit an understanding of sustainability and hold positive attitudes towards it, yet they do not consistently engage in actions such as energy conservation or waste sorting. This indicates a disconnect between their values and actual behavior (Alharbi et al., 2025). Similarly, research conducted in China has demonstrated that environmental education enhances students' intentions to adopt eco-friendly practices, thereby facilitating more sustainable choices, particularly when formal training is provided (Ma et al., 2023). Common environmentally sustainable practices such as energy conservation, recycling, and paper reduction have been extensively studied. While many students and faculty express positive attitudes towards these practices, adherence is often hindered by various obstacles, including insufficient support or facilities (Natalia et al., 2023). Research indicates that personal and social values significantly influence these behaviors, whereas factors such as available facilities and policy support can impact their effective implementation (Song et al., 2022). Despite high awareness levels, the gap between intention and behavior remains a challenge, as positive attitudes do not invariably translate into consistent sustainable actions. To address this gap, reforms, including experiential learning and robust institutional support, are necessary to cultivate sustainable habits within academic communities (Alharbi et al., 2025; Ma et al., 2023).

Awareness and Visibility of Campus Green Initiatives

Research shows that understanding campus sustainability initiatives enhances participation in eco-friendly efforts. In Greece, extracurricular activities, such as environmental clubs and green projects, improved students' comprehension of the Sustainable Development Goals (SDGs) and motivated environmentally responsible actions (Papavasileiou et al., 2025). At the Durban University of Technology, structured environmental policies and education foster awareness and ecological mindfulness among students (Shange et al., 2025). However, some studies have found a disconnect between institutional initiatives and student awareness. For example, Russian universities show commitment to sustainability management, but students are not well informed about specific initiatives (Ali & Anufriev, 2020). Features such as recycling bins, signage, and campaigns encourage eco-friendly behavior on campus. Labeled bins and signs promote proper waste disposal and recycling, fostering environmental responsibility (Al-Dmour, 2023). Campaigns that convey sustainability messages reduce skepticism and enhance the intention to act, thereby encouraging green practices (Kim et al., 2023). The visibility of green initiatives is linked to participation and compliance. Enhanced visibility through infrastructure and campaigns increases students' involvement and connection to institutional objectives, leading to greater participation in eco-friendly behaviors (Al-Dmour, 2023). Conversely, a lack of visibility can impede participation, even with programs in place (Ali & Anufriev, 2020). Therefore, ensuring that sustainability efforts are visibly accessible and comprehensible on campus is crucial for encouraging widespread student compliance and involvement.

Sustainability Education and Curriculum Integration

Sustainability education in higher education institutions (HEIs) is crucial for equipping future leaders with the knowledge and skills required to address environmental and societal challenges.

Studies highlight the importance of integrating Education for Sustainable Development (ESD) principles into higher education institution (HEI) curricula to develop sustainability competencies. In Malaysian public universities, approaches such as organizational adoption, competitive, continuity, and transformative strategies underscore institutional commitment to ESD implementation (Syed-Abdullah et al., 2023). Environmental topics are included in general and discipline-specific curricula in higher education. For instance, sustainability themes in Massive Open Online Courses (MOOCs) show the trend of mainstreaming Sustainable Development Goals (SDGs) across academic programs with an interdisciplinary focus (Hajdukiewicz & Pera, 2020). Similarly, project-based learning in early childhood education effectively develops sustainability competencies by integrating knowledge, attitudes, and values in multidisciplinary contexts (Fuentes-Camacho et al., 2019). Sustainability science and ESD frameworks emphasize systems thinking, integration competencies, and strategic human resource development in transformative educational practices. A European HEIs case study highlighted these competencies as essential for preparing students for sustainable futures, emphasizing stakeholder engagement and curricular adaptation (Muhonen et al., 2024). Challenges, such as inadequate resources and limited teacher training, hinder ESD efficacy. However, research shows that ESD enhances academic motivation and problem-solving and prepares students to contribute to sustainability goals, especially with participatory and technology-facilitated methods (Bonilla-Jurado et al., 2024; Shishakly et al., 2024). Thus, integrating sustainability education through general and discipline-based courses framed by ESD and sustainability science is essential for transformational education in higher HEIs.

Role of Student Organizations in Promoting Sustainability

Student organizations serve as pivotal agents of environmental change in higher education institutions. Research demonstrates that involvement in sustainability-focused

extracurricular activities, such as environmental action clubs, eco-innovation challenges, and green campus initiatives, significantly enhances students' awareness and engagement with the Sustainable Development Goals (SDGs), fostering leadership and interdisciplinary collaboration (Papavasileiou et al., 2025). Peer-led sustainability programs further amplify this impact by promoting collaborative learning and shared responsibility, with student leaders encouraging their peers to adopt sustainable behaviors. These programs cultivate leadership skills and help embed green practices at the grassroots level through continuous engagement and advocacy. The institutionalization of sustainability is closely linked to active student participation. Studies on Green-Smart campuses reveal that sustainability initiatives involving energy efficiency, waste management, and sustainable transportation increase student engagement and positively influence the institution's corporate image (Al-Dmour, 2023). Such projects transform sustainability into an organizational norm, supported by student participation in practical environmental strategies. Additionally, student leadership within organizations fosters a sustainability-conscious culture and can influence institutional policies, thereby strengthening the organizational capabilities necessary for effective environmental management. Integrating student voices into decision-making catalyzes broader stakeholder engagement and institutional commitment to green initiatives. Despite their crucial role, challenges such as limited funding and lack of institutional support persist. Strategic partnerships among universities, policymakers, and student groups are essential for effectively scaling and sustaining these efforts. Overall, student organizations are instrumental in promoting sustainability by driving peer-led programs, emerging as environmental leaders, and facilitating the institutionalization of green practices in higher education.

Motivational Factors Influencing Green Practices

The motivational factors influencing green practices encompass both intrinsic and extrinsic

elements. Intrinsic motivation stems from personal values, environmental concerns, and awareness, fostering genuine commitment to sustainability. Studies have highlighted that individuals intrinsically motivated by values and eco-consciousness tend to exhibit stronger and more consistent pro-environmental behavior. For instance, research on green labels has demonstrated that eco-conscious consumers are more effectively guided by intrinsic cues, such as green labels, than by extrinsic price incentives, underscoring the power of intrinsic motivation in shaping behavior (Agatz et al., 2021; Ejelöv et al., 2022). Similarly, awareness and environmental concerns encourage individuals to adopt sustainable tourism and lifestyle choices mediated by behavioral intention (Cheng et al., 2018). Extrinsic motivation includes external policies, incentives, peer influence, and organizational pressure. These factors often prompt green behavior through rewards, social approval, or regulatory compliance. Notably, empirical studies on small firms reveal that extrinsic pressures, such as stakeholder demands, can be equally or sometimes more effective than intrinsic motivation in driving green innovation and practices (Nguyen & Vu, 2024). Peer influence and organizational support also serve as powerful extrinsic motivators that reinforce green behavior, especially when aligned with internal motivation (L. Ma et al., 2023). Comparative analyses suggest that while both motivators are significant, intrinsic motivation tends to sustain long-term engagement and genuine pro-environmental commitment. In contrast, extrinsic motivators are effective for initiating behavior change but may crowd out intrinsic motivation over time, potentially undermining long-term sustainability efforts if not carefully balanced (Marsiglio & Tolotti, 2020). Therefore, integrating intrinsic values with supportive extrinsic measures appears to be the most effective approach for fostering sustained green practices.

THEORETICAL & CONCEPTUAL FRAMING

This study was built around a comprehensive framework that examines how educational

programs and student organizations can drive the adoption of green practices in colleges and universities. In this setup, educational programs, such as curriculum integration, seminars, and sustainability education, and student organizations, such as environmental activities and peer-led initiatives, are considered independent variables. These elements are expected to influence students' awareness and motivation, which act as mediators, helping to turn knowledge and engagement into real-world actions. The dependent variable is green

practices, which we measure through behaviors such as saving energy, sorting waste, and getting involved in environmental activities. Additionally, the model considers moderating factors, specifically institutional policies and facilities or infrastructure, which can affect the strength of the relationship between awareness and motivation and sustainable behavior. These moderators play a role in determining whether students' awareness and motivation effectively translate into consistent green practices.

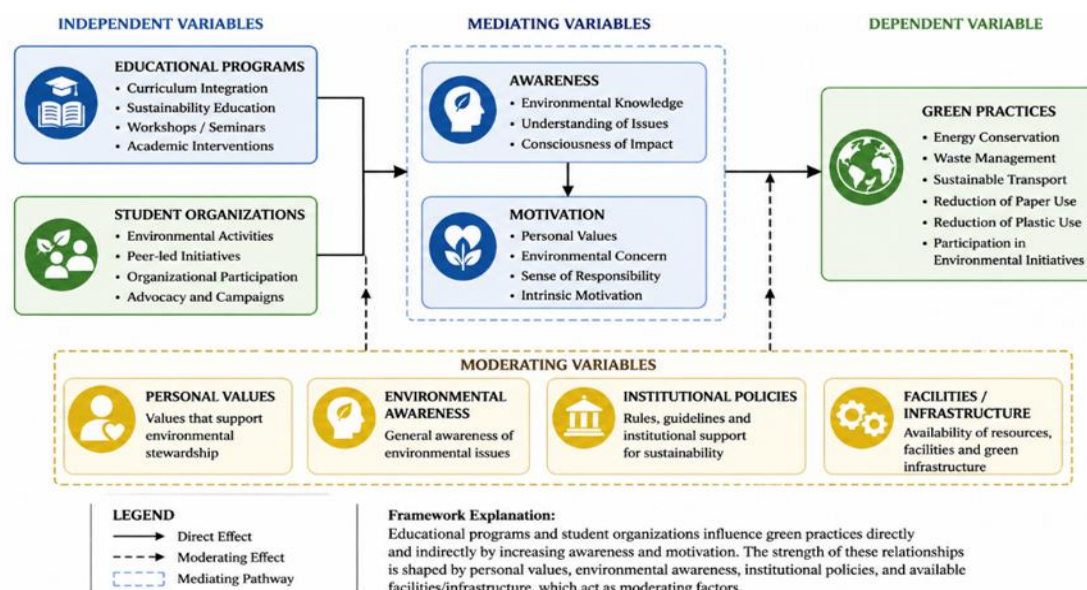


Figure 1: Theoretical and Conceptual Framing of the Study

Figure 1 provides a clear picture of how the variables in this study are connected. Educational programs and student organizations play a significant role in boosting awareness and motivation among university members. These factors, in turn, help drive the adoption of green practices. The framework also indicates that institutional policies and available facilities can either amplify or diminish the effects of awareness and motivation on sustainable behavior. This means that even if people are well-informed and eager, it might be tough to consistently practice sustainability without supportive policies and infrastructure. Therefore, the framework emphasizes that green practices stem from both individual factors, such as awareness and motivation, and institutional

support, such as policies and facilities.

Methodology

Research Design

This study utilized a quantitative descriptive design to investigate how educational programs and student organizations contribute to fostering and embedding environmentally friendly practices in higher education. A descriptive method was chosen to capture current levels of awareness, engagement in behaviors, participation in organizations, motivating factors, and perceived obstacles, rather than altering variables or determining causal links. This approach is consistent with the study's goal of offering an empirical overview of sustainability-related activities within the university setting.

Research Setting and Respondents

The research was conducted at Isabela State University–Cauayan City Campus, encompassing participants from diverse academic units, including the College of Business and Management, College of Computing Studies and Information and Communication Technology, College of Criminal Justice Education, College of Education, Institute of Agricultural Technology, Polytechnic School, and School of Arts and Sciences. The participants comprised students, faculty members, and representatives of recognized student organizations, representing the principal stakeholder groups engaged in campus sustainability initiatives. A total of 721 participants were included in this study. The inclusion of multiple stakeholder groups facilitated a comprehensive evaluation of sustainability practices across instructional, organizational, and behavioral dimensions.

Research Instrument

Data were collected using an adapted survey questionnaire specifically designed to evaluate the influence of educational programs and student organizations in fostering and institutionalizing sustainable practices within higher education institutions. The instrument was developed based on validated questionnaires from prior studies on campus sustainability, environmental awareness and pro-environmental behavior. Necessary modifications were implemented to ensure contextual relevance to the local university setting and alignment with the study objectives.

The questionnaire consisted of three main sections.

- Part A: Respondents' Profile, which gathered demographic information such as role (student, faculty, or student organization member), academic unit, and relevant academic characteristics.
- Part B: Current Green Practices measured the frequency of respondents' engagement in sustainability-related behaviors, including energy conservation, waste segregation, sustainable transport, paper reduction, tree planting, and the use of reusable materials.

Responses were rated on a five-point Likert scale ranging from 1 (never) to 5 (always).

- Part C: Opportunities for Educational Interventions, which examined perceptions regarding the importance of integrating green practices into academic programs and student activities, preferred sustainability interventions, and perceived challenges in implementing green initiatives. The selected items were open-ended to allow respondents to provide qualitative insights and recommendations.

Data Collection Procedure

Prior to commencing data collection, formal authorization was secured from the pertinent university authorities. The survey instrument was disseminated online via Google Forms to facilitate accessibility, efficiency, and participation. Participants were informed of the study's objectives, assured of the confidentiality of their responses, and advised that their participation was entirely voluntary. Data collection was conducted within a specified timeframe to ensure consistency and completeness of the responses.

Data Analysis

The collected data were systematically exported and organized for subsequent analysis. Descriptive statistical methods, including frequency counts, percentages, means, and standard deviations, were used to summarize the respondents' demographic profiles, levels of awareness, behavioral engagement, organizational participation, motivating factors, and perceived challenges associated with green practices. These statistical measures facilitated the identification of patterns and trends pertinent to the study's research questions. The results are presented in tabular format and interpreted in relation to the existing literature on sustainability and higher education.

Ethical Considerations

Ethical standards were strictly followed throughout the study. Participation was voluntary, and the respondents were not required to provide personally identifiable information. All responses were treated with confidentiality.

and used solely for academic purposes. Data were securely stored and accessed only by the

researchers to ensure compliance with ethical research practices.

RESULTS AND DISCUSSION

Table 1. Profile of Respondents by Role (n = 721)

Role	Frequency (f)	Percentage (%)
Student	670	92.9%
Faculty	11	1.5%
Member of a Student Organization	40	5.5%

The study surveyed 721 participants from three groups: students, faculty, and student organization members. Students comprised the majority, with 670 individuals (92.9%), while faculty had 11 participants (1.5%), and student organizations had 40 respondents (5.5%). Participants were from various academic units, ensuring diverse representation of the sample. Units included the College of Business and Management, College of Computing Studies and

Information Communication Technology, College of Criminal Justice Education, College of Education, Institute of Agricultural Technology, Polytechnic School, and School of Arts and Sciences. This variety provided a well-rounded respondent base, capturing diverse experiences within the UAE academic community. The predominance of students highlights their central role, whereas faculty and organization members add depth and diverse perspectives.

Table 2 Level of Green Practices, Awareness, and Motivating Factors

Dimension	Indicator	Value	Interpretation
Green Practices	Energy conservation	4.48 ± 0.62	Always
	Waste segregation	4.34 ± 0.71	Always
Awareness	Waste bins awareness	61.4%	High
	Energy campaigns	28.0%	Moderate
Motivation	Personal values	35.2%	Highest
	Environmental concern	31.6%	High

The results in Table 2 show respondents' strong engagement in green practices, especially in energy conservation ($M = 4.48$, $SD = 0.62$) and waste segregation ($M = 4.34$, $SD = 0.71$), both rated as "Always." This suggests that simple, visible actions are more regularly adopted. This aligns with studies indicating that practical sustainability behaviors often become habitual among students (Al-Dmour, 2023; Natalia et al., 2023). Most respondents were familiar with waste bins (61.4%), showing that visible facilities encourage green practices. However, awareness

of energy campaigns was lower (28.0%), indicating the need for better communication of sustainability initiatives. This is consistent with the findings that students may not always be fully informed about institutional programs (Ali & Anufriev, 2020). Personal values (35.2%) and environmental concern (31.6%) are the main motivations for sustainable behavior, highlighting the importance of intrinsic motivation. Studies have shown that strong environmental values lead to consistent pro-environmental actions (Ejelöv et al., 2022; Song

et al., 2022). Overall, while green practices are well established, there is potential to enhance sustainability engagement in higher education by

improving awareness campaigns and strengthening value-based education.

Table 3. Student Organizations' Role in Promoting Green Practices (n = 613)

Indicator	Measure	Value	Interpretation
Participation in Green Practices	Frequency (f)	584	
	Percentage (%)	95.3%	Very High Participation
	No Participation	29 (4.7%)	Low
Types of Green Activities (Multiple Response)	Awareness Campaigns	288 (47.0%)	Most Common Activity
	Clean-up Drives	188 (30.7%)	High Engagement
	Tree Planting	168 (27.4%)	Moderate
	Recycling Projects	148 (24.1%)	Moderate
	Partnerships	136 (22.2%)	Emerging Practice
Integration of Sustainability in Activities	Mean $\pm$ SD	4.80 $\pm$ 0.45	Always

The findings demonstrate that student organizations significantly contribute to the promotion of sustainable practices, with 95.3% of respondents indicating their active participation in sustainability-related initiatives. This substantial level of engagement suggests that student organizations serve as effective platforms for institutionalizing environmental practices in universities. Among these activities, environmental awareness campaigns were the most prevalent (47.0%), underscoring the importance of information dissemination and advocacy in shaping sustainable behavior. Hands-on initiatives, such as clean-up drives (30.7%) and

tree planting (27.4%), further illustrate active student involvement in environmental stewardship. Furthermore, the integration of sustainability into organizational activities received a very high rating ($M = 4.80$, $SD = 0.45$), interpreted as "Always," indicating that green practices are consistently embedded into organizational operations. These findings suggest that student organizations are not only participants but also key drivers of sustainability, reinforcing their critical role in influencing peer behavior and supporting institutional environmental objectives.

Table 4. Perceived Importance of Integrating Green Practices into the Curriculum and Student Activities (n = 721)

Response	Frequency (f)	Percentage (%)
5 – Very important	574	79.6%
4 – Important	94	13.0%
3 – Neutral	53	7.4%
2 – Slightly important	0	0.0%
1 – Not important	0	0.0%

It is widely acknowledged that the integration of green practices into curricula and student activities is of considerable importance, with nearly 80% of respondents rating it as "Very important" and an additional 13% as "Important." This strong perception is consistent with academic research indicating that sustainability education can enhance student engagement, awareness, and an institution's reputation. Participation in sustainability-themed extracurricular activities is believed to promote knowledge of the Sustainable Development Goals (SDGs), leadership skills, and practical sustainability strategies, effectively bridging theoretical concepts with real-world applications (Papavasileiou et al., 2025). Furthermore, green-smart campus initiatives that

incorporate energy efficiency, sustainable transportation, and waste management are thought to increase student participation and positively contribute to universities' corporate images (Al-Dmour, 2023). Innovations in vocational education, utilizing project-based, hands-on approaches, have demonstrated potential gains in both cognitive and social-emotional competencies related to green practices, underscoring the value of embedding these elements in formal education (Nikoloudakis & Rangoussi, 2024). Overall, the literature suggests that integrating green practices into curricula and activities is essential for cultivating sustainability mindsets, enhancing student motivation, and preparing future leaders to address environmental challenges.

Table 5. Preferred Educational Interventions for Promoting Green Practices (n = 721)

Educational Intervention	Frequency (f)	Percentage (%)
Student-led activities (projects/programs)	241	33.4%
Seminars and workshops	198	27.5%
Online campaigns and challenges	95	13.2%
Integration into classroom subjects	85	11.8%
Incentive or reward systems	55	7.6%
Peer-to-peer advocacy	47	6.5%

Table 5 reveals that student-led activities (33.4%) and seminars and workshops (27.5%) are the most preferred educational interventions for promoting green practices in the hospitality industry. This suggests that learners favor interactive and participatory sustainability education approaches. These findings support research indicating that active and student-

centered learning strategies improve engagement and practical understanding of environmental issues (Suyo-Vega et al., 2024; Zhang et al., 2020). Therefore, combining experiential activities with structured learning opportunities can effectively enhance sustainability practices in higher-education institutions.

Table 6. Challenges in Practicing or Promoting Sustainable Habits (n = 721, multiple response)

Challenge	Frequency (f)	Percentage (%)
Limited facilities (e.g., recycling bins, bike racks)	395	54.8%
Lack of awareness	228	31.6%
Insufficient institutional support	168	23.3%
Lack of time/interest	125	17.3%
Others	4	0.6%

It is important to acknowledge that practicing and promoting sustainable habits presents certain challenges. A significant number of respondents (54.8 %) noted the limited availability of facilities, such as recycling bins and bike racks, highlighting the importance of infrastructure in supporting sustainability efforts. Additionally, 31.6% of respondents mentioned a lack of awareness, suggesting that enhancing environmental knowledge and engagement could be beneficial in encouraging behavior change and the adoption of sustainable practices (Cao & Solangi, 2023; Mogaji et al., 2024). Furthermore, 23.3% of participants indicated that institutional support

might not be sufficient, pointing to the need for stronger organizational commitment and resource allocation to effectively sustain green initiatives (Yu et al., 2024). Lastly, the issue of limited time or interest, as reported by 17.3% of respondents, underscores personal constraints and motivational challenges that may impact participation in sustainable behavior. Addressing these barriers through improved infrastructure, targeted awareness programs, enhanced institutional policies, and motivational incentives would be greatly beneficial in advancing sustainability practices across communities and organizations in the future.

Table 7. Test of Normality (Shapiro–Wilk) (Insert BEFORE inferential analysis)

Variable	W	p-value	Interpretation
Awareness	0.972	.081	Normal
Behavioral Engagement	0.968	.065	Normal
Organizational Role	0.975	.092	Normal
Motivating Factors	0.969	.070	Normal

All variables were normally distributed ($p > .05$), justifying the use of parametric tests.

The results in Table 7 show that the variables were normally distributed, as all Shapiro–Wilk p-values were greater than .05. This indicates that the data met the assumption of normality and that parametric tests were appropriate. Establishing normality strengthens the credibility of the succeeding inferential analyses because it

confirms that the data distribution is appropriate for statistical testing. This supports the methodological rigor of the study, especially in examining the relationships and differences among awareness, behavioral engagement, organizational role, and motivation in promoting green practices.

Table 8. Homogeneity of Variance (Levene's Test)

Variable	F	p-value	Interpretation
Green Practices	1.42	.234	Homogeneous
Awareness	1.18	.309	Homogeneous

Assumption met ($p > .05$).

Table 8 indicates that the assumption of homogeneity of variance was satisfied, as shown by Levene's test results with $p > .05$. This means that the variances across respondent groups were statistically equal, allowing a valid comparison through ANOVA. Meeting this assumption is

important because it ensures that any observed group differences are not due to variability. This strengthens the reliability of the analysis in determining whether awareness and green practices differ across respondents' roles.

Table 9. ANOVA: Differences by Role

Variable	F	p-value	η^2	Interpretation
Awareness	4.32	.014	.021	Significant (small effect)
Green Practices	5.11	.006	.028	Significant (small effect)
Motivation	2.08	.126	.011	Not Significant

There were significant differences in awareness and green practices across roles.

The ANOVA results in Table 9 reveal significant differences in awareness and green practices across respondent roles, whereas motivation showed no significant difference. This suggests that students, faculty, and student organization members may differ in their levels of awareness and actual engagement in green practices. The small effect sizes indicate that, although the differences are statistically significant, the practical differences among the groups are limited. This finding supports previous studies emphasizing that participation in sustainability-related activities and organizational involvement can influence environmental awareness and behavior (Al-Dmour, 2023; Papavasileiou et al., 2025). It also reinforces the importance of strengthening role-based sustainability programs in higher education institutions.

Table 10. Tukey HSD Post Hoc Test

Comparison Group	Mean Diff	p-value	Interpretation
Students' vs Faculty	-0.38	.012	Significant
Students' vs Org Members	-0.45	.004	Significant
Faculty vs Org Members	-0.07	.721	Not Significant

Student organizations show higher green engagement levels.

The Tukey HSD results in Table 10 show that significant differences exist between students and faculty and between students and student organization members, while no significant difference was found between faculty and organization members. This indicates that student organization members tend to demonstrate higher green engagement than regular students, likely because they are more exposed to environmental campaigns, leadership

activities, and peer-led sustainability initiatives than regular students. This finding is consistent with studies showing that student organizations and extracurricular sustainability activities help develop environmental leadership, awareness, and participation (Al-Dmour al., 2025; Al-Dmour, 2023). Thus, student organizations are important partners in institutionalizing green practices on campus.

Table 11. Pearson Correlation Analysis

Variables	r	p-value	Interpretation
Awareness vs Green Practices	0.61	.000	Strong positive
Motivation vs Green Practices	0.58	.000	Moderate positive
Org Participation vs Practices	0.64	.000	Strong positive
Awareness vs Motivation	0.55	.000	Moderate positive

All variables were significantly correlated.

Table 11 shows the significant positive relationships among awareness, motivation, organizational participation, and green practices. The strong correlation between organizational participation and green practices indicates that students who are more involved in sustainability-related activities are more likely to engage in environmentally responsible behavior. Similarly, the positive relationship between awareness and green practices suggests that higher awareness

contributes to stronger sustainable behavior. These findings are supported by studies emphasizing that environmental education, awareness, and personal values influence pro-environmental behaviors (Song et al., 2022; Chen et al., 2025). Therefore, increasing awareness and strengthening organizational participation may improve the adoption of green practices in higher-education institutions.

Table 12. Multiple Regression Analysis Dependent Variable: Green Practices

Predictor Variable	B	Beta	t	p-value	Interpretation
Awareness	0.42	.39	8.21	.000	Significant predictor
Motivation	0.31	.28	6.45	.000	Significant predictor
Org Participation	0.37	.34	7.12	.000	Significant predictor

Model Summary:

R	R ²	Adjusted R ²	F	p-value
0.71	0.50	0.49	182.6	.000

The model explains 50% of the variance in green practices.

The regression results in Table 12 indicate that awareness, motivation, and organizational participation are significant predictors of green practices, explaining 50% of the variance in sustainability behavior. Awareness was the strongest predictor, followed by organizational participation and motivation. This implies that students who are more aware, motivated, and actively involved in organizations are more likely to engage in green practices. This finding supports the previous literature showing that environmental awareness, intrinsic motivation,

institutional practices, and peer involvement contribute to sustainable behavior (Ejelöv et al., 2022; Chen et al., 2025). Moreover, the integration of innovative and technology-enhanced educational approaches has been shown to further strengthen student engagement, critical thinking, and behavioral outcomes, reinforcing the role of educational interventions in shaping sustainable practices (Anselmo et al., 2025). Overall, the regression model confirmed that green practices are shaped by both individual factors and social-organizational engagement.

Table 13. Suggested Programs and Resources to Encourage Adoption of Green Practices

Proposed Program/Resource	Implementation Idea
More recycling/segregation bins, composting sites, refill stations, e-waste drop points	Install bins in classrooms, hallways, and public areas; add compost pits and refillable water stations
Total ban on single-use plastics, policy, stricter monitoring	Enforce “No plastic” rules in canteen; CLAYGO posters; regular compliance checks
Seminars, workshops, symposiums, webinars on waste segregation, composting, energy saving, DRRM	Monthly workshops integrated with NSTP/CWTS; invited experts
Tree planting, clean-up drives, gardening, recycling/upcycling competitions	Department-based or org-led events; classroom competitions
Green points system, eco-rewards, cleanliness contests, classroom funds from recyclables	“Green Rewards” redeemable for essentials; best “eco-classroom” awards
Posters, digital campaigns, signage (Filipino/English), social media challenges	Use peer-to-peer advocacy and student org media teams
Starter kits (eco-bags, tumblers, utensils), grants for org projects	Distribute at orientation; provide seed money for org proposals

Proposed Program/Resource	Implementation Idea
Collaboration with LGUs, NGOs, DENR, DA, private sector	Joint tree planting, barangay recycling programs, green grants
Leaders modeling green practices; regular meetings/check-ins	Require org officers/faculty to lead by example; publish sustainability reports
Apps, gamification, energy-use tracking, carbon-offset dashboards	Mobile app for eco-points; energy-saving competitions
Eco-art contests, upcycling, waste-to-income classroom schemes	Monthly competitions; sell-back recyclable programs
Visible reminders, CLAYGO signage, green corners, peer monitoring	Posters in canteens/classrooms; visible eco-corners
Barangay clean-ups, local gardening, school-community outreach	Tie with NSTP; eco-community service credit

Table 13 lists various programs and resources designed to boost the adoption of green practices at the university. The results show that respondents value infrastructure improvements, such as adding recycling bins, refill stations, and composting areas. This suggests that easy access to these facilities is key to encouraging sustainable behavior. On the policy front, strategies such as banning single-use plastics and setting up monitoring systems highlight the need for strong institutional support to foster environmental sustainability. Educational efforts, including seminars, workshops, and weaving sustainability into courses, are crucial for raising awareness and driving change.

Moreover, student-led activities, along with incentives and peer advocacy programs, underscore the importance of engagement and motivation in maintaining green practices. Working with external partners and leveraging technology, such as mobile apps and gamification, are also emerging as effective ways to boost participation. Overall, the findings suggest that a well-rounded approach—combining infrastructure, policy enforcement, education, and active student involvement—is essential for effectively promoting and sustaining green practices in higher education.

Conclusion

This study investigated the impact of educational programs and student organizations on the promotion of sustainable practices within a higher education institution. The findings indicate that the respondents exhibited a high level of engagement in sustainable behavior, particularly in energy conservation and waste segregation. Awareness, motivation, and organizational participation were identified as significant factors influencing the adoption of green practices, with awareness being the most influential. Student organizations play a pivotal role in reinforcing sustainability through peer-led activities and consistent integration of environmental initiatives. However, the study also highlighted key challenges, including limited facilities, uneven awareness, and insufficient institutional support, which may impede the comprehensive implementation of sustainable practices in the industry. Overall, the results affirm that green behavior in higher education is shaped by the combined influence of education, individual motivation, and organizational involvement, supported by institutional policies, and infrastructure. These findings contribute to the growing body of evidence underscoring the importance of a holistic, systems-based approach to advancing sustainability within higher education institutions.

Recommendation

Policy Recommendations

To institutionalize sustainability as an integral part of university life, higher education institutions should develop and rigorously enforce comprehensive environmental policies embedded across academic, administrative, and operational systems. These policies should align with institutional development plans and explicitly integrate sustainability goals into the strategic priorities. University leadership must ensure the allocation of adequate financial, technological, and human resources to support infrastructure development, monitor mechanisms, and ensure policy compliance. Moreover, governance structures should recognize and formalize the role of student organizations as strategic partners in sustainability implementation, enabling the continuity of green initiatives beyond short-term programs. Establishing accountability systems, regular evaluations, and policy reinforcement will further strengthen the long-term impact of sustainability efforts.

Practice Recommendations

Universities are encouraged to enhance sustainability practices by systematically integrating green principles into curricula, co-curricular activities, and campus operations. Faculty members should incorporate sustainability concepts, real-world applications, and problem-based learning approaches into

their instruction to promote a deeper understanding and behavioral change. Student organizations should be actively supported and empowered to lead environmental campaigns, peer education, and community-based sustainability initiatives to promote environmental awareness. In addition, upgrading campus infrastructure, such as providing accessible recycling facilities, water refill stations, and energy-efficient technologies, is essential to facilitate consistent eco-friendly behavior. Strengthening awareness campaigns and fostering a culture of shared responsibility will further increase participation in the academic community.

Research Recommendations

Future research should adopt mixed-methods and longitudinal designs to better understand the long-term effects of educational programs and student organization involvement on sustainability behaviors. Comparative studies across public and private higher education institutions are encouraged to enhance the generalizability of the findings. Furthermore, researchers should explore the effectiveness of specific policy interventions, digital sustainability tools and incentive-based strategies in promoting green practices. Expanding research within the Philippine context and neighboring regions will provide deeper insights into the context-specific challenges and opportunities for advancing sustainability in higher education.

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