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Green horizons: an evaluation of sustainability integration in social studies curriculum

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A B S T R A C T

This study evaluates the integration of sustainability education within the Social Studies curriculum at a university, emphasizing students' perceptions of teaching strategies and community engagement. Using a quantitative descriptive survey design, data were collected from students across all year levels during the first semester of the 2024–2025 academic year. Prior to data collection, participants underwent a preparatory orientation designed to reinforce their understanding of sustainability concepts and provide essential background knowledge. Analysis of mean scores and standard deviations revealed strong student agreement on the effectiveness of hands-on learning, real-life examples, and interdisciplinary approaches in deepening their understanding of sustainability. Respondents also highlighted the value of community partnerships and cross-subject integration in creating a cohesive and impactful educational experience. The findings underscore the importance of practical applications and community involvement in fostering sustainability awareness. However, the study also identified the need for greater consistency in instructional practices and more robust teacher training to ensure effective curriculum integration. It calls for sustained institutional support, adequate resources, and ongoing professional development to reinforce and expand the reach of sustainability education. Strengthening these elements will help cultivate informed, responsible learners equipped to address complex environmental and social challenges, contributing to the long-term success of sustainability initiatives in education.

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RESUMO

Este estudo avalia a integração da educação para a sustentabilidade no currículo de Estudos Sociais em uma universidade, com ênfase nas percepções dos estudantes sobre estratégias de ensino e engajamento comunitário. Utilizando um delineamento de pesquisa quantitativa descritiva, os dados foram coletados de alunos de todos os níveis durante o primeiro semestre do ano letivo de 2024–2025. Antes da coleta, os participantes passaram por uma orientação preparatória destinada a reforçar sua compreensão dos conceitos de sustentabilidade e fornecer conhecimentos básicos essenciais. A análise das médias e desvios padrão revelou forte concordância dos estudantes quanto à eficácia do aprendizado prático, de exemplos da vida real e de abordagens interdisciplinares para aprofundar a compreensão da sustentabilidade. Os respondentes também destacaram o valor das parcerias comunitárias e da integração entre disciplinas para criar uma experiência educacional coesa e impactante. Os resultados ressaltam a importância das aplicações práticas e do envolvimento comunitário na promoção da conscientização sobre sustentabilidade. No entanto, o estudo identificou a necessidade de maior consistência nas práticas pedagógicas e de uma formação docente mais robusta para garantir uma integração curricular eficaz. Defende-se apoio institucional contínuo, recursos adequados e desenvolvimento profissional permanente para ampliar o alcance da educação para a sustentabilidade e formar cidadãos responsáveis, preparados para enfrentar desafios ambientais e sociais complexos.

Keywords*:*
Educação para a sustentabilidade, currículo de estudos sociais, percepções dos estudantes, aprendizagem prática , engajamento comunitário

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Introduction

Sustainability education plays a paramount role in shaping the future of students by equipping them with the knowledge and skills needed to address the complex challenges facing our world today (Mian et al., 2020). As climate change, environmental degradation, and social inequalities continue to threaten global ecosystems, there is an urgent need for educational systems to prioritize sustainability in their curricula (Weiss et al., 2021). This demand for sustainability education extends beyond theoretical knowledge, requiring students to engage in hands-on experiences that connect their learning to real-world issues (Luse & Rursch, 2021).

Globally, sustainability education has gained significant attention as countries strive to integrate sustainable practices into their educational frameworks (Glavič, 2020). In the United States, the National Environmental Education Foundation (NEEF) emphasizes the importance of experiential learning, advocating for the use of hands-on projects and community-based initiatives to foster environmental stewardship among students (King et al., 2021). Similarly, the United Nations Sustainable Development Goals (SDGs) stress the need for education that promotes sustainability, encouraging interdisciplinary learning and community engagement as essential components for fostering long-term environmental change (Carlsen & Bruggemann, 2021). A study by Mulà et al. (2022) supports that sustainability education, when effectively implemented, can foster a sense of responsibility in students and motivate them to take action in their communities.

In the Philippine context, several studies highlight the growing recognition of sustainability education in the academic sphere. A study by Balbin and Balbin (2024) revealed that the integration of sustainability concepts into the curriculum significantly enhances students' awareness and responsibility toward environmental issues. Similarly, the Department of Education (DepEd) in the Philippines has made strides in promoting sustainability through its K–12 curriculum by incorporating environmental education across various subjects (Lärarinriktning, 2023).

However, despite these advancements, there remains a lack of consistency in the implementation of sustainability education across schools, particularly in underserved and resource-constrained areas. Studies have pointed out that while some schools have successfully integrated sustainability into their teaching practices, many still face challenges in terms of teacher preparedness, limited instructional resources,

and the absence of strong community partnerships to support effective learning (Ferguson et al., 2021).

This study was conducted in an urban-located State University in the Philippines, a setting that reflects both the opportunities and challenges of implementing sustainability education in higher education institutions. While the university benefits from its metropolitan location—providing access to community organizations, environmental networks, and academic resources—it also grapples with systemic issues such as uneven faculty training, limited interdisciplinary collaboration, and underutilized partnerships with local stakeholders. These conditions underscore the complexity of translating sustainability policies into consistent and impactful classroom practices, even in relatively well-resourced academic environments.

Despite existing literature on curriculum integration and teacher training, there remains a gap in understanding how real-world experiences and community partnerships contribute to students' grasp of sustainability concepts. Most studies have focused on policy-level initiatives or primary and secondary education, leaving higher education contexts underexplored. Furthermore, while interdisciplinary learning is widely advocated, its practical application in Philippine universities—especially in terms of fostering civic engagement and environmental responsibility—has not been sufficiently documented.

This study aims to address these gaps by exploring how community engagement, hands-on learning, and interdisciplinary teaching approaches enhance sustainability education in Philippine higher education. Specifically, it examines the role of community partnerships in bridging the gap between theory and practice, as well as the effectiveness of real-world sustainability projects in fostering deeper learning and civic engagement among students. To effectively achieve the objectives of this study, the following research questions were formulated to guide the investigation: How do teachers integrate sustainability principles into their daily teaching practices? How do respondents evaluate the strategies teachers use to incorporate sustainability into their instruction? And how do respondents perceive the overall effectiveness of these sustainability integration strategies in the classroom? These questions aim to explore instructional methods, stakeholder perspectives, and the impact of sustainability education within the academic setting.

Methodology

This study adopted a quantitative descriptive research design to systematically capture Social Studies students' perceptions of sustainability integration without manipulating variables—an approach well-suited for assessing educational practices and attitudes (Kosie & Lew-Williams, 2022). Data were collected using a structured survey questionnaire, ideal for efficiently gathering standardized responses from a large group (Griffin et al., 2021). Respondents were students from an urban state university in the Philippines who had attended a three-day preparatory orientation on sustainability education, ensuring recall on foundational knowledge prior to participation.

The survey instrument was developed from the qualitative findings of Balbin and Balbin (2024), with themes translated into measurable indicators. Grounded in transformative learning theory (Gajparia et al., 2022) and experiential learning theory (Haan & Reinders, 2025), the tool emphasized real-world engagement and interdisciplinary learning. A 5-point Likert scale captured levels of agreement, and content validity was ensured through expert review. A pilot test confirmed high reliability, with a Cronbach's alpha of 0.89.

Description of Respondents

The respondents of this study were 184 Social Studies students, selected through simple random sampling from a total of 341 enrolled in the Bachelor of Secondary Education major in Social Studies program at a state university in Metro Manila, Philippines during the academic year 2024–2025 (Keith et al., 2023). Representing all year levels, these students brought diverse academic experiences and perspectives, and were actively enrolled in relevant coursework at the time of data collection.

With foundational knowledge of sustainability gained through both curricular and extracurricular exposure, they demonstrated meaningful engagement with subjects addressing sustainability issues locally and globally. This positioned them to provide informed insights into how sustainability concepts are integrated into the Social Studies curriculum, the effectiveness of teaching methods, and the overall impact of sustainability education within their academic experience—contributing valuable perspectives for assessing current practices and identifying areas for improvement.

Data Analysis

This study employed mean scores and standard deviations to analyze students' evaluation of sustainability integration in Social Studies education. Mean scores, as noted by Hodson (2022), represent the average of all responses for each item and are widely used in educational research to capture general trends or attitudes. Schrum et al. (2022) further emphasize that mean values offer a consolidated view of respondents' overall opinions, making them effective for interpreting perceptions across various aspects of a study. In this context, high mean scores indicated strong agreement with the integration of sustainability principles, while lower scores reflected more neutral or divergent views.

Standard deviation, on the other hand, measures the dispersion of responses around the mean (Shi et al., 2020). A low standard deviation suggests a high level of agreement among respondents, whereas a high standard deviation indicates varied opinions or uncertainty (Turner, 2020). This measure was crucial in assessing the consistency of student perceptions, revealing whether views were widely shared or influenced by differing experiences. These statistical tools provided a comprehensive understanding of both the central tendencies and variability in student responses, aligning with the study's descriptive aim to explore and interpret perceptions without inferring causality.

Results

Table 1.

Mean and Standard Deviation Values on Teacher Integration Methods

Descriptions	Mean	Standard Deviation	Verbal Interpretations
Teachers incorporate real-life examples into their lessons to teach sustainability principles.	4.42	0.772	Strongly Agree
Project-based learning is a common method used by teachers to engage students with sustainability concepts.	4.25	0.777	Strongly Agree
Teachers encourage open discussions about sustainability issues in their classrooms.	4.42	0.814	Strongly Agree
Information and Communication Technology (ICT) is effectively used to teach sustainability concepts.	4.24	0.875	Strongly Agree
Teachers adapt their teaching methods to connect sustainability principles to real-world contexts.	4.33	0.82	Strongly Agree
Teachers provide opportunities for students to apply sustainability principles in their daily lives.	4.23	0.884	Strongly Agree
The integration of sustainability principles into lessons is well-established in the curriculum.	4.09	0.881	Agree
Teachers utilize interdisciplinary approaches to teach sustainability concepts.	4.19	0.831	Agree
Teachers emphasize critical thinking exercises related to sustainability issues.	4.36	0.838	Strongly Agree
Teachers provide clear guidelines for students to engage in sustainability-related projects.	4.23	0.898	Strongly Agree
Average	***4.28***	***0.839***	***Strongly Agree***

The above table displays the respondents' evaluation on teaching integration methods which revealed strong agreement among respondents regarding the use of real-life examples and open discussions to teach sustainability principles, both receiving the highest mean score of 4.42. These findings highlights the effectiveness of participatory and contextual strategies in enhancing student engagement and understanding. In contrast, the lowest-rated item—"The integration of sustainability principles into lessons is well-established in the curriculum"—had a mean of 4.09, suggesting that while integration is present, it is not yet fully embedded or consistent across all instructional areas.

The composite mean score of 4.28 indicates a high level of satisfaction with current teaching practices. However, the variability in responses points to the need for more systematic curriculum integration and stronger institutional support. These results affirm the importance of experiential and transformative learning approaches, as emphasized by recent studies in sustainability education (Gajparia et al., 2022; Haan & Reinders, 2025).

Table 2

Mean and Standard Deviation Values on Factors Influencing Teacher Approach

Descriptions	Mean	SD	Verbal Interpretations
Teachers' attitudes towards sustainability significantly influence their teaching practices.	4.22	0.862	Strongly Agree
Availability of resources and materials affects teachers' ability to integrate sustainability into their lessons.	4.22	0.849	Strongly Agree
Institutional support plays a crucial role in enabling teachers to implement sustainability initiatives.	4.31	0.836	Strongly Agree
Professional development opportunities impact teachers' confidence in teaching sustainability concepts.	4.35	0.797	Strongly Agree
Collaboration with colleagues enhances teachers' ability to develop innovative sustainability-related projects.	4.38	0.774	Strongly Agree
Teachers' prior training in sustainability education influences their teaching approaches and methodologies.	4.99	1.022	Strongly Agree
Community engagement initiatives affect how teachers approach sustainability integration in their classrooms.	4.28	0.787	Strongly Agree
The school's culture promotes or hinders the integration of sustainability into the curriculum.	4.03	0.931	Agree
Teachers feel pressured to cover specific content areas, limiting their ability to focus on sustainability topics.	3.56	1.072	Agree
Teachers receive adequate support from administration in implementing sustainability initiatives.	3.81	0.994	Agree
Average	***4.26***	***0.892***	***Strongly Agree***

The table above shows that respondents strongly agreed that prior training in sustainability education significantly shapes teachers' instructional approaches, with the highest mean score of 4.99. This highlights the importance of professional development in building teacher capacity, though the high variability suggests unequal

access to quality training. Collaboration with colleagues also received high ratings, underscoring the value of shared practice in developing innovative sustainability-focused instruction.

The lowest-rated item, with a mean of 3.56, reflects moderate agreement that curriculum pressures limit sustainability integration. The wide range of responses points to differing institutional contexts. Generally, the composite mean of 4.26 indicates strong agreement on the influence of training, collaboration, and institutional support. These findings align with Kioupi and Voulvoulis (2022) on enabling conditions for sustainability education and Hendrickx et al. (2025) on the role of professional learning communities in fostering pedagogical innovation.

Table 3

Mean and Standard Deviation Values on Student Learning Outcomes

Descriptions	Mean	SD	Verbal Interpretation
Students demonstrate a deeper understanding of sustainability concepts.	4.15	0.874	Agree
Students are more engaged in learning when sustainability concepts are integrated into the curriculum.	4.37	0.872	Strongly Agree
The integration of sustainability education improves students' academic performance.	4.32	0.857	Strongly Agree
Students can effectively communicate their understanding of sustainability issues to others.	4.20	0.88	Agree
Students display increased motivation to participate in sustainability-related activities.	4.11	0.916	Agree
The interdisciplinary approach to sustainability education enhances students' overall learning experience.	4.23	0.866	Strongly Agree
Students are better equipped to tackle real-world sustainability challenges.	4.26	0.886	Strongly Agree
The incorporation of sustainability principles fosters critical thinking and problem-solving skills.	4.25	0.84	Strongly Agree
Students exhibit a sense of responsibility towards environmental issues after engaging in sustainability education.	4.24	0.796	Strongly Agree
The integration of sustainability concepts encourages students to become active participants in their communities.	4.27	0.851	Strongly Agree
Average	***4.24***	***0.864***	***Strongly Agree***

Respondents strongly agreed that integrating sustainability concepts into the curriculum enhances student engagement, as shown by the highest mean score of 4.37 in this table. This suggests that relevant and participatory content fosters greater interest and involvement in learning. The consistency in responses highlights the broad appeal of sustainability topics across the student population. In contrast, the lowest-rated item—student motivation to participate in sustainability-related activities—received a mean of 4.11, indicating moderate agreement. This points to the

need for more interactive and community-based experiences to deepen student involvement.

The overall mean of 4.24 reflects a positive perception of sustainability integration's impact on learning outcomes. Notably, the high score for fostering critical thinking and problem-solving supports Evans et al. (2023), who emphasize sustainability education's role in developing active citizenship. It also aligns with Redman and Wiek's (2022) transformative learning framework, which highlights the importance of equipping students to address complex global challenges through reflective and applied learning.

Table 4

Mean and Standard Deviation Values on Engaging Strategies

Descriptions	Mean	SD	Verbal Interpretation
Teachers use engaging strategies to make sustainability education captivating for students.	4.14	0.859	Agree
Real-life examples enhance the effectiveness of sustainability education.	4.40	0.825	Strongly Agree
Project-based learning approaches increase students' interest in sustainability topics.	4.15	0.925	Agree
Open dialogues about sustainability issues help students develop informed opinions.	4.37	0.854	Strongly Agree
Technology is effectively used to make sustainability education more engaging.	4.30	0.853	Strongly Agree
Hands-on activities contribute to a more profound understanding of sustainability concepts.	4.30	0.847	Strongly Agree
The use of diverse teaching methods keeps students engaged in sustainability education.	4.32	0.837	Strongly Agree
The effectiveness of sustainability education is influenced by the relevance of the content to students' lives.	4.28	0.836	Strongly Agree
Collaborative projects enhance student learning experiences in sustainability education.	4.30	0.839	Strongly Agree
Teachers continuously adapt their strategies to meet students' needs in sustainability education.	4.26	0.88	Strongly Agree
Average	***4.28***	***0.856***	***Strongly Agree***

The above table reveals that respondents strongly agreed that using real-life examples significantly enhances the effectiveness of sustainability education, with the highest mean score of 4.40. This underscores the importance of contextualizing lessons to make sustainability concepts more relatable and engaging. The consistent agreement among respondents highlights the universal value of real-world applications in deepening student understanding. In contrast, the lowest-rated item—teachers using engaging strategies—received a mean of 4.14, suggesting that while such methods are present, there is room for improvement in their consistent and innovative application.

The overall mean of 4.28 indicates that teachers generally employ effective strategies to engage students in sustainability education. High ratings for technology use and hands-on activities support recent findings by Evans et al. (2023) and Kioupi and Voulvoulis (2022), who emphasize experiential and interdisciplinary approaches as key to fostering student interest and learning. These results also align with Tilbury's (2023) advocacy for adaptive, technology-enhanced instruction. While the strategies are largely effective, enhancing teacher training and resource access could further improve consistency and impact across classrooms.

Table 5

Mean and Standard Deviation Values on Content and Skills Focus

Descriptions	Mean	SD	Verbal Interpretation
Sustainability principles are integrated across various core subjects in my school.	4.02	0.886	Agree
Students engage in activities that promote critical thinking and analysis of sustainability issues.	4.18	0.868	Agree
Teachers prioritize developing students' problem-solving skills in relation to sustainability challenges.	4.11	0.883	Agree
The curriculum includes projects that require students to apply sustainability concepts to real-world situations.	4.11	0.842	Agree
Teachers emphasize the social, economic, and environmental dimensions of sustainability.	4.22	0.784	Strongly Agree
The focus on sustainability education prepares students to become responsible global citizens.	4.36	0.806	Strongly Agree
Students are encouraged to research and engage with sustainability issues in their local and global communities.	4.23	0.867	Strongly Agree
The integration of sustainability concepts helps students understand complex systems and interconnections.	4.33	0.820	Strongly Agree
Students are taught to evaluate different perspectives on sustainability issues and form informed opinions.	4.23	0.835	Strongly Agree
The emphasis on skills related to sustainability prepares students for future careers and challenges.	4.21	0.978	Strongly Agree
Average	**4.20**	**0.854**	**Strongly Agree**

The above table shows that respondents strongly agreed that sustainability education prepares students to become responsible global citizens, with the highest mean score of 4.36. This highlights the effectiveness of content and skills focus in fostering global awareness and equipping learners to address sustainability challenges. The low standard deviation reflects strong consensus, indicating that this outcome is widely recognized across the respondent group.

In contrast, the lowest-rated item—on integrating sustainability principles across core subjects—received a mean of 4.02, suggesting that while integration is acknowledged, it may not be uniformly applied. The overall mean of 4.20 indicates that the content and skills focus is generally well-aligned with sustainability goals. These findings support recent research by Kioupi and Voulvoulis (2022), who emphasize the

role of curriculum design in promoting systems thinking and global responsibility, and by Evans et al. (2023), who highlight the importance of interdisciplinary approaches in helping students understand complex interconnections.

Table 6

Mean and Standard Deviation Values on Knowledge and Training Gap

Descriptions	Mean	SD	Verbal Interpretation
There is a need for more training and support for teachers in integrating sustainability effectively.	4.10	0.935	Agree
Some teachers lack confidence in incorporating sustainability into their teaching.	3.40	1.115	Agree
The level of training provided for sustainability education is adequate.	4.03	0.898	Agree
Teachers have access to sufficient resources for teaching sustainability.	3.81	0.931	Agree
Comprehensive training programs for teachers on sustainability education are needed.	4.27	0.884	Strongly Agree
The existing professional development opportunities are adequate to support sustainability education.	4.11	0.86	Agree
Some teachers only mention sustainability briefly without focusing on in-depth learning.	3.52	1.123	Agree
Ongoing support for teachers in sustainability education is crucial.	4.26	0.900	Strongly Agree
Teachers feel isolated in their efforts to incorporate sustainability into their teaching.	3.54	1.036	Agree
More resources should be allocated for sustainability training and development.	4.39	0.796	Strongly Agree
Average	***3.94***	***0.940***	***Agree***

The table above displays that respondents strongly agreed that increased resource allocation is essential for sustainability training and development, as reflected in the highest mean score of 4.39. This underscores the importance of investing in materials, tools, and professional development to address knowledge and training gaps. The low standard deviation indicates broad consensus on this need. In contrast, the lowest-rated item—teachers lacking confidence in incorporating sustainability—received a mean of 3.40, suggesting that while this issue exists, it is less urgent. The high variability in responses points to differences in teacher backgrounds and preparedness.

The overall mean of 3.94 indicates that respondents perceive notable gaps in sustainability education training. These findings support Barth et al. (2022), who advocate for structured professional development to enhance teacher readiness, and Morales-Aguilar et al. (2025), who emphasize the importance of ongoing training in building confidence and competence in sustainability instruction. Strengthening

support systems and ensuring equitable access to training remain key priorities for effective integration.

Table 7

Mean and Standard Deviation Values on Importance of Action and Follow-Through

Descriptions	Mean	SD	Verbal Interpretation
Hands-on learning experiences significantly enhance students' understanding of sustainability concepts.	4.31	0.854	Strongly Agree
Teachers who use real-life examples are more effective in teaching sustainability.	4.43	0.801	Strongly Agree
Practical applications of sustainability concepts make learning more engaging.	4.36	0.791	Strongly Agree
Students show a greater interest in sustainability topics when they are connected to real-world issues.	4.27	0.838	Strongly Agree
The effectiveness of sustainability education improves with the use of practical, hands-on activities.	4.31	0.822	Strongly Agree
Hands-on projects lead to better retention of sustainability knowledge and skills.	4.28	0.856	Strongly Agree
The connection between theory and practice in sustainability education is crucial.	4.24	0.881	Strongly Agree
Students are more likely to engage with sustainability issues when they can see the impact of their actions.	4.30	0.847	Strongly Agree
The integration of practical activities in sustainability education fosters deeper learning.	4.34	0.802	Strongly Agree
Teachers who prioritize hands-on learning create more impactful sustainability education programs.	4.30	0.820	Strongly Agree
Average	***4.31***	***0.828***	***Strongly Agree***

The respondents in this table strongly agreed that teachers who use real-life examples are more effective in teaching sustainability, with the highest mean score of 4.43. This highlights the value of connecting concepts to real-world scenarios, which enhances student understanding and engagement. The low standard deviation reflects consistent recognition of this strategy's impact. In contrast, the lowest-rated item—on the importance of linking theory to practice—still received a strong mean of 4.24, suggesting that while the connection is acknowledged, it may not be emphasized as consistently in practice.

The overall mean of 4.31 indicates strong agreement on the importance of action-oriented strategies in sustainability education. These findings align with Dewey's experiential learning theory, which advocates for hands-on experiences to deepen learning, and recent research by Evans et al. (2023), which emphasizes the role of practical applications in fostering critical thinking and civic engagement. While practical activities are widely implemented, the results suggest a need for more deliberate integration of theory and practice through community-based projects,

service-learning, and interdisciplinary approaches to ensure holistic and impactful sustainability education.

Table 8

Mean and Standard Deviation Values on Effectiveness of Hands-on and Relevant Approaches

Descriptions	Mean	SD	Verbal Interpretation
There is a clear link between sustainability education and civic engagement.	4.16	0.833	Agree
Teachers emphasize the importance of translating sustainability knowledge into action.	4.16	0.853	Agree
Students are provided opportunities to implement solutions to sustainability challenges.	4.07	0.843	Agree
The lack of follow-through on sustainability initiatives undermines their impact.	3.98	0.92	Agree
Students feel empowered to take action on sustainability issues after their education.	4.04	0.904	Agree
Teachers provide guidance for students to develop actionable plans related to sustainability.	4.14	0.89	Agree
Hands-on projects encourage students to apply sustainability principles practically.	4.16	0.859	Agree
The effectiveness of sustainability education is evident in students' real-world actions.	4.15	0.838	Agree
Action-oriented projects enhance the learning experience related to sustainability.	4.28	0.816	Strongly Agree
Follow-through on sustainability initiatives is essential for long-term impact.	4.20	0.848	Agree
Average	***4.13***	***0.860***	***Agree***

It can be gleaned in the table that respondents strongly agreed that action-oriented projects enhance the learning experience in sustainability education, with the highest mean score of 4.28. This underscores the effectiveness of practical, hands-on strategies in fostering deeper understanding and retention of sustainability concepts. The consistent agreement among respondents reflects the broad recognition of these approaches as impactful. In contrast, the lowest-rated item—regarding the lack of follow-through on sustainability initiatives—received a mean of 3.98, suggesting that while the importance of continuity is acknowledged, it may not be consistently emphasized across educational settings.

The overall mean of 4.13 indicates that hands-on and relevant approaches are generally effective but could benefit from more consistent implementation and sustained efforts. These findings align with Kolb's experiential learning theory, which emphasizes learning through active engagement, and with Wals and Corcoran (2019), who advocate for translating sustainability knowledge into real-world action to drive

long-term change. Strengthening follow-through mechanisms—such as community-based projects, service-learning, and structured evaluation—can help bridge the gap between theory and practice, ensuring that sustainability education leads to meaningful and lasting impact.

Table 9.

Mean and Standard Deviation Values on Importance of Interdisciplinary Learning

Descriptions	Mean	SD	Verbal Interpretation
Hands-on learning experiences significantly enhance students' understanding of sustainability concepts.	4.31	0.854	Strongly Agree
Teachers who use real-life examples are more effective in teaching sustainability.	4.43	0.801	Strongly Agree
Practical applications of sustainability concepts make learning more engaging.	4.36	0.791	Strongly Agree
Students show a greater interest in sustainability topics when they are connected to real-world issues.	4.27	0.838	Strongly Agree
The effectiveness of sustainability education improves with the use of practical, hands-on activities.	4.31	0.822	Strongly Agree
Hands-on projects lead to better retention of sustainability knowledge and skills.	4.28	0.856	Strongly Agree
The connection between theory and practice in sustainability education is crucial.	4.24	0.881	Strongly Agree
Students are more likely to engage with sustainability issues when they can see the impact of their actions.	4.30	0.847	Strongly Agree
The integration of practical activities in sustainability education fosters deeper learning.	4.34	0.802	Strongly Agree
Teachers who prioritize hands-on learning create more impactful sustainability education programs.	4.30	0.82	Strongly Agree
Average	***4.31***	***0.828***	***Strongly Agree***

The Respondents strongly agreed that teachers who use real-life examples are more effective in teaching sustainability, with the highest mean score of 4.43. This underscores the value of applying real-world contexts to make sustainability concepts more relatable and engaging. In contrast, the lowest-rated item—on the importance of connecting theory and practice—still received a strong mean of 4.24, suggesting that while the principle is widely acknowledged, its emphasis may vary across learning environments.

The overall mean of 4.31 indicates strong support for interdisciplinary learning approaches that integrate hands-on activities and practical applications. These findings align with Evans and Ferreira (2023), who advocate for holistic, cross-disciplinary sustainability education, and reinforce the importance of experiential learning in fostering deeper understanding and skill development. Moving forward, educators are encouraged to promote interdisciplinary collaboration and design

integrated projects that connect academic content with real-world sustainability challenges.

Table 10

Mean and Standard Deviation Values on Varied Implementation and Need for Consistency

Descriptions	Mean	SD	Verbal Interpretation
The integration of sustainability principles in teaching varies across different subjects and grade levels.	4.23	0.820	Strongly Agree
Inconsistent application of sustainability education across different classrooms can hinder student learning.	4.21	0.884	Strongly Agree
A uniform approach to sustainability education enhances student understanding and engagement.	4.17	0.878	Agree
Students benefit from a consistent application of sustainability concepts in their education.	4.27	0.833	Strongly Agree
The effectiveness of sustainability education diminishes when there are inconsistencies in its implementation.	4.17	0.897	Agree
Teachers should strive for consistency in integrating sustainability into their curriculum and instruction.	4.34	0.822	Strongly Agree
Inconsistencies in sustainability education lead to gaps in students' knowledge and skills.	4.17	0.889	Agree
Students are more likely to grasp sustainability principles when they are consistently reinforced.	4.17	0.831	Agree
A collaborative approach among teachers can lead to more uniform and effective sustainability education.	4.31	0.816	Strongly Agree
Regular evaluations of sustainability integration practices can promote consistency in teaching and learning.	4.31	0.843	Strongly Agree
Average	***4.24***	***0.848***	***Strongly Agree***

In the above table, the respondents strongly agreed that consistency in integrating sustainability into curriculum and instruction is essential, with the highest mean score of 4.34. This reflects a shared belief that uniformity across classrooms enhances student understanding. Similarly, the high score for collaborative approaches among teachers (mean = 4.31) reinforces the importance of shared practices in achieving effective and consistent sustainability education. In contrast, the lowest-rated item—on the diminishing impact of inconsistent implementation—still received a strong mean of 4.17, suggesting general agreement but with slightly more varied perceptions.

The overall mean of 4.24 indicates strong support for a coordinated approach to sustainability education across subjects and grade levels. These findings align with Tilbury's (2011) advocacy for integrated curriculum design to prevent fragmentation and deepen learning. To strengthen consistency, educators and institutions may consider standardized frameworks, interdisciplinary collaboration, and regular evaluation of teaching practices. Reinforcing sustainability concepts throughout the

educational journey ensures a more coherent and impactful learning experience for students..

Table 11

Mean and Standard Deviation Values on Promoting Community Engagement and Partnerships

Descriptions	Mean	Standard Deviation	Verbal Interpretation
Community partnerships enhance the effectiveness of sustainability education.	4.41	0.792	Strongly Agree
Collaborating with local organizations enriches students' learning experiences.	4.39	0.811	Strongly Agree
Engagement with community projects helps students apply sustainability concepts to real-world situations.	4.48	0.762	Strongly Agree
Students are more motivated to learn about sustainability when it is connected to their community.	4.38	0.855	Strongly Agree
Partnerships with environmental groups provide valuable resources for sustainability education.	4.42	0.821	Strongly Agree
Community engagement projects foster a sense of responsibility and civic engagement in students.	4.38	0.809	Strongly Agree
Teachers who promote community involvement create more impactful sustainability education programs.	4.38	0.861	Strongly Agree
Students benefit from learning about sustainability through real-world experiences.	4.36	0.846	Strongly Agree
Effective sustainability education requires strong connections between schools and communities.	4.32	0.858	Strongly Agree
Community partnerships help bridge the gap between theory and practice in sustainability education.	4.45	0.803	Strongly Agree
Average	***4.40***	***0.818***	***Strongly Agree***

Respondents strongly agreed as shown in the table, that engagement with community projects enhances students' ability to apply sustainability concepts to real-world situations, with the highest mean score of 4.48. This reflects a clear recognition of the value of hands-on involvement in bridging classroom learning with practical experience. High scores for statements on community partnerships further emphasize their role in enriching sustainability education and connecting theory with practice.

The overall mean of 4.40 indicates strong consensus on the importance of promoting community engagement and partnerships. These findings support Anderson and Maninger (2022), who highlight the impact of collaboration with local organizations in making sustainability education more relevant and transformative. By fostering civic responsibility and providing real-world learning opportunities, such partnerships contribute to the development of informed and proactive citizens equipped to address sustainability challenges.

Conclusion

This study concludes that teachers integrate sustainability principles through real-life examples, interdisciplinary content, and hands-on projects, which respondents consistently evaluated as effective strategies for enhancing engagement

and understanding. While most strategies received strong agreement, areas like follow-through and uniform implementation showed slightly lower consensus, indicating opportunities for improvement. Respondents perceived these integration methods as impactful, affirming the value of experiential and collaborative approaches in sustainability education. These findings contribute to the body of knowledge by providing empirical evidence on student perceptions, reinforcing the importance of consistent, action-oriented, and community-linked strategies in fostering meaningful sustainability learning.

Discussion

The findings of this study affirm the effectiveness of experiential, interdisciplinary, and community-linked strategies in integrating sustainability education into Social Studies instruction. Students strongly agreed on the value of real-life examples, project-based learning, and open discussions, aligning with global research that emphasizes contextual and participatory approaches to sustainability education (Tafese & Kopp, 2025; Zong, 2022). Zong's (2022) collaborative self-study highlights how interdisciplinary teaching and community engagement foster sustainability awareness among Social Studies learners in teacher education programs, mirroring the Philippine students' emphasis on relevance and civic involvement.

However, this study also identified gaps in curriculum consistency and instructional follow-through, which contrast with findings from more structured educational systems where sustainability integration is supported by institutional frameworks and policy mandates (Tafese & Kopp, 2025). The Philippine context reveals challenges such as uneven teacher training and limited access to instructional resources, underscoring the need for localized strategies that address systemic constraints.

By translating qualitative insights into measurable indicators and validating them through a robust survey instrument, this study contributes methodologically to the literature. It also expands the geographic scope of sustainability education research, which remains underrepresented in Southeast Asia. As published in an international journal, the study offers empirical evidence from a Global South context, supporting global efforts to localize the UN Sustainable Development Goals through culturally responsive pedagogy and reinforcing the call for inclusive, equity-driven approaches to sustainability integration worldwide.

Recommendations

To improve sustainability education, universities should embed sustainability outcomes into Social Studies curriculum, promote interdisciplinary lesson planning, and ensure consistent integration across levels. Teachers should receive targeted training in experiential and community-based strategies, supported by adequate resources. Formal partnerships with local organizations can provide real-world learning, while regular evaluations and student feedback will help refine practices and sustain pedagogical impact.

Limitations

This study has several limitations. The sample was limited to Social Studies students from a single institution, restricting the generalizability of the findings. Data relied on self-reported surveys, which may be affected by bias or varying levels of understanding despite a prior seminar. The study also focused solely on student perspectives, excluding insights from teachers or administrators. Additionally, it captured a one-time snapshot during the 2024–2025 school year, limiting insight into long-term effects. Future research should include a broader sample, multiple stakeholders, and longitudinal data to provide a more comprehensive understanding.

Ethical Considerations

This study upheld ethical standards by securing informed consent from all participants, ensuring voluntary involvement, and maintaining confidentiality through anonymized data and secure storage. Respondents were informed of their rights, including the option to withdraw at any time without consequence. Additionally, AI tools were used solely for writing assistance to enhance clarity and coherence in the manuscript where human input and judgement were given utmost consideration.

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