



Assessing the Integration of UN Sustainable Development Goals in the Business Curricula in HEIs

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Abstract

The integration of sustainability into higher education is now a global priority, especially in business education. Future professionals are expected to balance economic performance with social responsibility and environmental stewardship. This study examined how sustainability is embedded in the business curriculum of selected higher education institutions in Misamis Occidental and Zamboanga del Norte, Philippines. It also assessed students' familiarity with sustainability concepts and the United Nations Sustainable Development Goals (UN SDGs), as well as their perceived importance of sustainability integration. A quantitative descriptive design was used. Data were collected from 102 undergraduate business students through a structured questionnaire with Likert-scale items and selected open-ended questions. Results show moderate familiarity with the environmental, social, and economic dimensions of sustainability. The economic area scored lowest despite the business context. Familiarity with the UN SDGs was also limited ($M = 2.63$). Nearly half of the respondents reported no direct exposure to sustainability-related activities, indicating uneven curricular implementation. Despite these gaps, students strongly agreed that sustainability integration is important ($M = 3.92$). They associated it with ethical decision-making, critical thinking, professional readiness, and long-term impact. The findings suggest that sustainability is valued but not yet systematically institutionalized across the curriculum. This study contributes by showing that positive student attitudes do not automatically translate into coherent curricular integration. Stronger curriculum mapping, explicit alignment with the SDGs, and expanded experiential learning are needed to achieve comprehensive sustainability education in business programs.

Keywords: *Sustainability Integration in Higher Education, Business Education, Curriculum Mapping, Sustainable Development Goals (UN SDGs), Student Perceptions, Sustainability Literacy, Experiential Learning*

INTRODUCTION

The concept of sustainability traces its origins to forestry management in the early 18th century, when Hans Carl von Carlowitz proposed that no more trees should be harvested than could naturally regenerate. This principle of responsible resource use later evolved into a global development paradigm. In 1983, the United Nations established the [World Commission on Environment and Development \(1987\)](#), whose report, *Our Common Future* (commonly known as the Brundtland Report), provided the widely cited definition of sustainable development as meeting present needs without compromising the ability of future generations to meet their own.

Sustainability has since become a dominant global discourse, embraced across governments, industries, and educational institutions. Scholars argue that environmental degradation is not merely an ecological issue but also an educational one, as many unsustainable decisions are made by highly educated individuals. This perspective underscores the responsibility of higher education institutions (HEIs) to cultivate holistic thinking, ethical reasoning, and long-term accountability. Political commitments to sustainability education date back to declarations such as the Belgrade Charter and the Tbilisi Declaration, which emphasized environmental literacy and systemic thinking. Over time, these commitments expanded to explicitly include higher education institutions as key agents of sustainable transformation.



The adoption of the Sustainable Development Goals (UN SDGs) in 2015 further strengthened universities' role in advancing sustainable development. The UN SDGs provide an integrated framework linking environmental protection, social equity, and economic development. Recent empirical studies indicate that while business schools increasingly express commitment to SDG integration, actual curricular embedding often varies in depth and consistency (Cottafava et al., 2019; Filho et al., 2019). Research also shows that meaningful integration requires not only curriculum mapping but also student engagement, experiential learning, and measurable learning outcomes.

In business education, sustainability is particularly critical. Future professionals are expected to balance profitability with social responsibility and environmental stewardship. Higher education institutions are therefore tasked with preparing graduates who can make decisions that consider economic, social, and ecological consequences. In the Philippines, business curricula guided by the Commission on Higher Education (CHED) are expected to reflect this integrative approach. Aligning curricula with the UN SDGs—particularly Goal 4 (Quality Education), Goal 8 (Decent Work and Economic Growth), and Goal 12 (Responsible Consumption and Production)—ensures that graduates are equipped to contribute to national and global development priorities.

Despite these global commitments, the extent to which sustainability is systematically integrated into business curricula and meaningfully understood by students remains an empirical question, particularly at the regional level. In the context of higher education institutions in Misamis Occidental and Zamboanga del Norte, examining students' perceptions, experiences, and levels of familiarity provides insight into how sustainability education is operationalized in practice.

This study, therefore, assesses the integration of sustainability in the business curriculum and evaluates students' awareness, exposure, and perceived importance of sustainability and the UN SDGs. By grounding the analysis in quantitative evidence, the study contributes to understanding whether sustainability is merely embedded in course descriptions or genuinely internalized by learners. Specifically, this research seeks to answer the following questions:

1. What is the demographic profile of the student respondents in terms of selected characteristics?
2. What is the level of students' perceived sustainability integration within the business curriculum?
3. To what extent have students encountered sustainability-related activities in their academic experience?
4. What is the level of students' familiarity with the core areas of sustainability (environmental, social, and economic dimensions)?
5. What is the level of students' familiarity with the Sustainable Development Goals (UN SDGs)?
6. How important do students perceive the integration of sustainability within the business curriculum?

LITERATURE REVIEW

The concept of sustainability is most widely rooted in the definition advanced by the [World Commission on Environment and Development \(1987\)](#), which frames sustainable development as meeting present needs without compromising the ability of future generations to meet their own. This definition underscores the interconnectedness of environmental protection, social equity, and economic viability—dimensions that have since become foundational in sustainability discourse. [Allen and Hoekstra \(1993\)](#) further emphasized sustainability as a systems-based concept that requires balance between ecological and human dimensions, thereby reinforcing the need for integrative approaches in education.

Sustainability has evolved from a primarily environmental concern into a comprehensive global development framework, particularly with the adoption of the United Nations Sustainable Development Goals (UN SDGs). The UN SDGs operationalize sustainability through 17 interlinked goals that address poverty, inequality, environmental degradation, and economic development, providing higher education institutions with a concrete framework for curriculum alignment and learning outcomes ([Perevoznic & Dragomir, 2024](#); [Ortiz-Moya & Reggiani, 2023](#)).

Across international contexts, research consistently affirms the strategic role of higher education institutions in advancing the UN SDGs; however, the depth of integration varies significantly by region, institutional capacity, and policy support. Studies in European and Australian contexts often report more structured institutional frameworks, whereas research in developing regions highlights greater dependence on individual faculty initiatives and limited systemic monitoring mechanisms. This suggests that while normative commitment to sustainability is globally widespread, operational integration remains uneven and context-dependent.

The Role of Higher Education in Advancing Sustainability

Higher education institutions play a critical role in advancing sustainability by shaping values, competencies, and professional practices. [Orr \(1992\)](#) argued that environmental and social crises stem from a failure of education to cultivate holistic and ethical thinking, asserting that sustainability challenges are fundamentally educational in nature. [Cortese \(2003\)](#) expanded this argument, emphasizing that universities must prepare graduates to address sustainability challenges through interdisciplinary learning, systems thinking, and civic engagement.

Theoretical framing of sustainability education has been strengthened by competency-based models. [Wiek et al. \(2011\)](#) proposed five core sustainability competencies—systems thinking, anticipatory competence, normative competence, strategic competence, and interpersonal competence—which have become widely cited in sustainability literacy research. Similarly, UNESCO's Education for Sustainable Development (ESD) framework outlines key competencies such as critical thinking, collaboration, self-awareness, and integrated problem-solving. These frameworks provide a structured lens for assessing not only curricular content but also student literacy and transformative learning outcomes.

Several scholars have emphasized that sustainability in higher education must go beyond institutional policies and campus operations to include curriculum transformation. [Wright \(2004\)](#) traced the evolution of sustainability declarations in higher education, noting that early commitments often lacked concrete curricular implementation. Similarly, [Filho et al. \(2007\)](#) highlighted persistent gaps between sustainability commitments and actual teaching practices, calling for deeper curricular integration to ensure meaningful student learning outcomes.

While early literature frequently described institutional commitments as aspirational rather than operational, more recent studies show incremental progress, though findings remain mixed. Some institutions demonstrate measurable curriculum mapping and SDG alignment, whereas others report fragmented or symbolic integration. Methodologically, many studies rely on self-reported perceptions or document analysis, which may overestimate actual instructional depth.

Sustainability Integration in Curriculum and Teaching

Integrating sustainability into the curriculum requires intentional design and pedagogical innovation. [Rusinko \(2010\)](#) proposed a matrix-based approach to embedding sustainability across disciplines, arguing that integration should be both vertical (across program levels) and horizontal (across courses). [Sammalisto and Lindhqvist \(2008\)](#) likewise emphasized the need for institution-wide strategies to ensure consistency and coherence in sustainability education.

Recent studies reinforce these perspectives. [Ahmad et al. \(2023\)](#) introduced the CoDesignS framework, highlighting collaborative curriculum design as a mechanism for embedding education for sustainable development across programs. [Alfathy et al. \(2024\)](#) similarly concluded that sustainability integration remains uneven globally, often dependent on individual faculty initiatives rather than systematic institutional planning. In the Philippine context, [Duran and Mariñas \(2024\)](#) found that teachers' intention to integrate sustainability significantly influences curriculum outcomes, underscoring the importance of faculty readiness and institutional support.

Collectively, these studies indicate a pattern of regionally differentiated implementation. Institutions with formal sustainability policies and accreditation pressures demonstrate more structured integration, whereas resource-constrained institutions show variability tied to faculty motivation and leadership support. This variability suggests that sustainability literacy outcomes cannot be assumed to be uniform across contexts.

Sustainability in Business Education

Business education occupies a strategic position in sustainability education due to its influence on future decision-makers. [Singh et al. \(2011\)](#) argued that business curricula must move beyond profit-centered models and incorporate sustainability perspectives that account for social responsibility and environmental stewardship. [Sisaye \(2013\)](#) further emphasized that integrating sustainability into accounting and management education fosters ethical reasoning and long-term organizational thinking.

[Benn and Dunphy \(2009\)](#) demonstrated that action research approaches in MBA programs enhance students' engagement with sustainability by linking theory to practice. [Benn and Rusinko \(2011\)](#) further proposed the concept of a "technological community" as a framework for sustainability education in business schools, promoting collaboration, innovation, and shared responsibility.

Recent scholarship suggests that the integration of sustainability in business schools remains partially contested. While many institutions publicly endorse SDG alignment, empirical evidence indicates that sustainability content is often concentrated in elective courses rather than embedded across core subjects. This selective integration may limit the development of comprehensive sustainability competencies among business graduates.

Students' Perceptions and Familiarity with Sustainability and the UN SDGs

Students' perceptions are a critical indicator of the effectiveness of sustainability integration. [Kagawa \(2007\)](#) found that students often experience dissonance between their understanding of sustainability concepts and the way they are delivered in the curriculum, resulting in fragmented knowledge. [Abowardah et al. \(2024\)](#) reported that students generally view sustainability as important but demonstrate only moderate familiarity unless sustainability is explicitly embedded in coursework.

Studies focusing on SDG awareness reveal similar trends. [Alfathy et al. \(2024\)](#) and [Sánchez-Carracedo et al. \(2021\)](#) found that students are more familiar with widely publicized goals such as Quality Education and Climate Action but show limited understanding of the UN SDGs as an integrated framework. [Zorba et al. \(2024\)](#) demonstrated that innovative pedagogical approaches significantly enhance understanding of the SDGs.

Overall, findings across contexts are broadly consistent: students perceive sustainability as important, yet demonstrate uneven familiarity, particularly regarding the integrated structure of the UN SDGs. However, most studies rely on cross-sectional survey designs, limiting causal inference regarding the impact of specific pedagogical interventions.

Experiential Learning and Sustainability Engagement

Experiential and participatory learning approaches have consistently been identified as effective in deepening understanding of sustainability. [Lozano \(2011\)](#) emphasized that experiential learning and community engagement strengthen students' application of sustainability principles. [Filho et al. \(2024\)](#) similarly highlighted student participation as a key driver of SDG implementation.

Living labs and service-learning initiatives enhance sustainability literacy through active engagement and reflection ([Filho et al., 2023](#)). These approaches align with UNESCO's vision of transformative education for sustainable development ([Venkataraman, 2009](#)).

Evidence from multiple regions suggests that experiential learning yields more robust sustainability literacy outcomes than purely lecture-based approaches. Nonetheless, implementation remains uneven due to resource constraints and curricular rigidity.

Synthesis and Research Gap

The literature demonstrates a broad consensus that integrating sustainability in higher education—particularly in business education—is essential. However, findings are mixed regarding the depth and coherence of implementation, with evidence of regional differentiation and methodological reliance on perception-based measures. While students generally perceive sustainability as important, familiarity with sustainability dimensions and the UN SDGs often remains moderate unless supported by structured curricular integration and experiential learning.

In the Philippine context, empirical studies examining students' sustainability literacy and familiarity with the SDGs in business programs remain limited. Moreover, few studies explicitly apply established sustainability competency frameworks to assess student-level outcomes. This study addresses these gaps by systematically examining sustainability integration, student familiarity, and perceived importance across regional higher education institutions, thereby contributing context-specific, competency-informed evidence to the sustainability education literature.

RESEARCH METHOD

Research Design

This study employed a quantitative, descriptive, cross-sectional research design to examine the extent of sustainability integration in business curricula and assess students' familiarity with sustainability concepts and the UN SDGs. A descriptive design is appropriate when the objective is to identify patterns, levels, and distributions within a defined population without establishing causal relationships ([Creswell & Creswell, 2018](#)).

Although selected open-ended prompts were included in the questionnaire, these responses were used solely to clarify and contextualize quantitative findings; thus, the study remains methodologically grounded in a purely quantitative descriptive framework. Although the questionnaire included selected open-ended prompts, these were used solely to contextualize quantitative findings.

Population and Sampling

The target population consisted of undergraduate students enrolled in Business and Accountancy programs in selected higher education institutions (HEIs) in Misamis Occidental and Zamboanga del Norte, Philippines. A total of four (4) HEIs participated in the study: two (2) private HEIs located in Misamis Occidental, one (1) public HEI in Misamis Occidental, and one (1) public HEI in Zamboanga del Norte.

Because comprehensive enrollment lists and total population figures were not accessible

from participating institutions, probability sampling and formal sample size computation (e.g., [Krejcie & Morgan, 1970](#)) were not feasible. Instead, the study used stratified purposive sampling with voluntary-response recruitment.

Stratification was conducted in two stages. First, students were grouped by institution type (private or public) to ensure representation across institutional categories. Second, within each institution, students were grouped according to academic program enrollment. The program-based strata included: BSBA – Financial Management, BSBA – Marketing Management, BS Accountancy, and Bachelor of Science in Accounting Information Systems (BSAIS).

Survey links were formally endorsed by institutional administrators and distributed by program coordinators and faculty members to currently enrolled students within each stratum. All eligible students within the identified programs were invited to participate. Inclusion in the final sample was determined by voluntary response submission.

A total of 102 valid responses were obtained. Of these, 48 respondents (47.1%) were enrolled in private HEIs, and 54 (52.9%) in public HEIs, reflecting representation across both institutional types. Program distribution consisted of 72 BSBA–Financial Management students (70.6%), 13 BSBA–Marketing Management students (12.7%), 11 BS Accountancy students (10.8%), and 6 BSAIS students (5.9%). By year level, respondents were predominantly third-year students (55.9%), followed by fourth-year students (24.5%), second-year students (13.7%), and first-year students (5.9%).

While institutional and program-level representation was encouraged through structured distribution, participation ultimately depended on voluntary response rates. Therefore, the findings are interpreted as context-specific and descriptive rather than statistically generalizable to the entire population of business students in the region.

Instrumentation

Data were collected using a researcher-developed structured questionnaire, constructed based on the foundational sustainability framework of the World Commission on Environment and Development (1987), the SDG framework, and established sustainability competency models ([Wiek et al., 2011](#); [UNESCO, 2017](#)). The instrument was not adapted from a single previously validated scale; rather, it was developed specifically to align with the objectives of assessing curriculum integration, student familiarity, and perceived importance of sustainability within the regional context.

The questionnaire consisted of five substantive sections: perceived integration of sustainability into coursework (3 items); encounters with sustainability-related learning activities (3 items); familiarity with the three sustainability dimensions (3 items); familiarity with the UN SDGs (2 items); and perceived importance of integration of sustainability in the curriculum (2 items). The sustainability familiarity construct included three items corresponding to the environmental, social, and economic dimensions.

Most items were measured using a five-point Likert scale (Likert, 1932), anchored as follows: 1=Not Integrated/Not at all familiar/Strongly disagree, 2=Slightly integrated/Slightly familiar/Disagree, 3=Moderately integrated/familiar/Neutral, 4=Well Integrated/Familiar/Agree, and 5=Very well Integrated/Very familiar/Strongly agree. Selected open-ended questions allowed respondents to provide brief examples of sustainability-related experiences; however, these responses were used descriptively to support the interpretation of quantitative results rather than to constitute a qualitative analytic strand.

Validity and Reliability

Content validity was established through review by faculty members in sustainability and

business education, who evaluated the instrument for clarity, alignment with sustainability constructs, and relevance to business curricula. A pilot test was conducted with a small group of thirty business students to assess clarity, wording, and completion time, resulting in minor revisions to improve item precision. Internal consistency reliability was evaluated using Cronbach's alpha. The scale demonstrated excellent internal consistency ($\alpha = .96$), exceeding the commonly accepted threshold of $\alpha \geq .70$ for research instruments (Nunnally & Bernstein, 1994; Taber, 2018).

Data Collection Procedure

The survey was administered electronically to facilitate accessibility across institutions. Participants received a brief explanation of the study's purpose, assurances of voluntary participation, and information regarding anonymity and confidentiality. Completion of the questionnaire constituted implied informed consent. Data collection occurred during a single academic term, consistent with the cross-sectional design.

Data Analysis

Data analysis employed descriptive statistical techniques consistent with the study's exploratory and diagnostic objectives. Frequencies, percentages, means, and standard deviations were computed to summarize perceived curriculum integration, exposure to sustainability-related activities, familiarity with sustainability dimensions and the UN SDGs, and perceived importance of sustainability integration. Open-ended responses were reviewed and grouped into recurring descriptive categories to illustrate quantitative patterns, but were not subjected to formal thematic coding procedures.

Ethical Considerations

Ethical standards were observed throughout the research process. No personally identifiable information was reported, and data were analyzed in aggregate form to ensure confidentiality. The study adhered to institutional ethical guidelines governing research involving human participants.

Limitations of the Study

This study is subject to several methodological limitations that should be considered when interpreting the findings. The research employed a non-probability, voluntary-response sampling approach due to the unavailability of institutional population lists at the participating higher education institutions. Consequently, the sample cannot be assumed to be statistically representative of all Business and Accountancy students in Misamis Occidental and Zamboanga del Norte.

The findings, therefore, provide context-specific descriptive insights rather than generalizable population estimates. It is also possible that students with a greater interest in sustainability were more inclined to participate, thereby introducing potential self-selection bias. The cross-sectional design further limits the study, as it captures students' perceptions and familiarity at a single point in time. The research does not establish causal relationships between curriculum exposure

FINDINGS AND DISCUSSION

Respondents Profile

This section presents the demographic characteristics of the students who participated in the survey, providing essential context for interpreting the study's subsequent findings. The respondents came from various public and private higher education institutions in Misamis Occidental and Zamboanga del Norte, representing a diverse range of business-related programs

and year levels. By examining their gender, age, institutional affiliation, program enrollment, and academic standing, the study establishes a clear understanding of the population from which perceptions of sustainability integration were drawn. This demographic overview ensures that the analysis of sustainability awareness and exposure is grounded in the varied academic and personal backgrounds of the participating business students.

Table 1. Respondents' Profile (N = 102)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	26	25.5%
	Female	75	73.5%
	Trans	1	1.0%
Type of Institution	Private	48	47.1%
	Public	54	52.9%
Program Enrolled	BSBA – Financial Management	72	70.6%
	BS Accountancy	11	10.8%
	BSBA – Marketing Management	13	12.7%
	BSAIS	6	5.9%
Year Level	1st Year	6	5.9%
	2nd Year	14	13.7%
	3rd Year	57	55.9%
	4th Year	25	24.5%

A total of 102 business students from public and private higher education institutions in Misamis Occidental and Zamboanga del Norte participated in the study. The majority of respondents were female (73.5%), followed by male students (25.5%), with a small proportion identifying as transgender (1%). This gender distribution reflects trends in business programs in the Philippines, where female enrollment has consistently outnumbered male counterparts, particularly in management and accountancy-related fields (CHED, 2014). Understanding gender representation is crucial, as prior research indicates that women tend to express greater awareness and concern about sustainability issues than men, potentially influencing perceptions of sustainability integration within the curriculum (Zelezny et al., 2000).

In terms of institutional affiliation, 52.9% of the respondents came from public institutions, while 47.1% were from private institutions, demonstrating a balanced representation across the region's higher education landscape. The distribution across programs reveals that the majority were enrolled in BSBA–Financial Management (70.6%), followed by BS Accountancy (10.8%), BSBA–Marketing Management (12.7%), and BSAIS (5.9%). This aligns with national enrollment patterns, in which business and management programs remain among the most in-demand fields in Philippine higher education (Philippine Statistical Authority, 2023), thereby reinforcing the relevance of evaluating sustainability education among business students.

Regarding academic standing, most respondents were third-year students (55.9%), followed by fourth-year (24.5%), second-year (13.7%), and first-year students (5.9%). Upper-year students dominated the sample, which is advantageous, as they have broader exposure to their curricula and are more likely to have encountered sustainability-related content across various courses. The literature suggests that exposure to advanced coursework increases students' ability to recognize

environmental, social, and economic sustainability concepts within academic programs (Lozano et al., 2015), making their insights particularly valuable to this study.

Overall, the demographic composition of the respondents supports the study's objective of assessing sustainability integration, as the participants represent diverse backgrounds, program exposures, and academic experiences that influence their understanding of sustainability and the UN SDGs.

Perceived Sustainability Integration

Building on the respondents' demographic characteristics, it is essential to examine how these students perceive the integration of sustainability into their academic programs. Understanding their level of exposure and awareness provides insight into how effectively business curricula communicate sustainability concepts across different year levels, programs, and institutional types.

Thus, the next section presents the students' perceptions of sustainability integration in their courses, shedding light on the extent to which environmental, social, and economic dimensions, as well as the UN Sustainable Development Goals, are embedded in their learning experiences. Students' perceptions of the integration of sustainability topics into their courses were measured on a five-point Likert scale, where 1 indicated "Not integrated at all," and 5 indicated "Very well integrated."

Table 2. Frequency Distribution of Students' Perceived Integration of Sustainability (N = 102)

Integration Level	Frequency (f)	Percentage (%)
5 – Very well integrated	14	13.7
4 – Well integrated	23	22.5
3 – Moderately integrated	50	49.0
2 – Slightly integrated	13	12.7
1 – Not integrated at all	2	2.0

Table 2 presents descriptive statistics on students' perceptions of the integration of sustainability into the curriculum. The mean score ($M = 3.33$) indicates that students generally perceive sustainability integration as moderate rather than extensive. The distribution is centered around the midpoint of the scale, suggesting that sustainability is present in coursework but not consistently embedded at a high level across subjects.

This pattern reflects a partial but uneven integration of sustainability concepts. Rather than indicating strong endorsement of full integration, the clustering of responses around the midpoint suggests that sustainability may be addressed selectively or implicitly rather than systematically across the curriculum. Such findings are consistent with prior research showing that sustainability in higher education is often incorporated in isolated courses or initiatives rather than through comprehensive curriculum alignment (Abowardah et al., 2024; Duran & Mariñas, 2024).

The relatively smaller proportion of students reporting strong agreement further reinforces the interpretation that sustainability integration may lack depth or visibility within core business subjects. Ahmad et al. (2023) argue that meaningful embedding requires intentional curriculum mapping and alignment with institutional sustainability goals. Similarly, studies across higher education contexts indicate that students recognize sustainability themes but perceive them as fragmented when not explicitly connected to learning outcomes and assessment strategies (Zorba et al., 2024; Boned-Gómez et al., 2024).

These findings suggest that the integration of sustainability within the business curriculum is acknowledged but not yet fully institutionalized. Consistent with the literature, strengthening pedagogical coherence—through interdisciplinary coordination, experiential learning, and faculty development—may enhance the visibility and impact of sustainability education (Chinedu et al., 2023; Pontón et al., 2023). Overall, the results indicate a foundation for sustainability integration that would benefit from greater curricular intentionality and systemic alignment.

Encounter with Sustainability Activities

While the previous section highlighted students' perceptions of sustainability integration within the curriculum, it is equally important to examine how students encounter sustainability in practice through activities and engagements. Understanding these encounters provides insight into the extent to which experiential learning opportunities complement theoretical knowledge. The next section explores students' experiences with sustainability-related activities, including participation in workshops, community projects, and campus initiatives, which serve as avenues for applying sustainability principles beyond the classroom.

By analyzing these encounters, the study aims to identify both the frequency and quality of student engagement in sustainability practices, thereby linking curricular exposure to practical experiences. This connection is crucial, as prior research suggests that active engagement in sustainability activities enhances students' comprehension, motivation, and long-term commitment to sustainable development (Ahmad et al., 2023; Christou et al., 2024; Boned-Gómez et al., 2024).

Table 3. Encounter with Sustainability Activities

Encountered Sustainability Activities	Frequency	% of Total
Yes	55	53.9%
No	47	46.1%
Total	102	100%

Table 3 shows that student exposure to sustainability-related activities is present but not universal. Slightly more than half of the respondents report encountering sustainability-related assignments, discussions, or projects, indicating partial implementation of experiential and cross-disciplinary approaches within the curriculum. The near balance between exposure and non-exposure suggests uneven integration across programs or course offerings rather than systematic institutional embedding.

The reported activities reflect engagement across environmental, economic, and social dimensions of sustainability. Students described participating in community-based initiatives such as tree planting, cleanup drives, and solar-related projects, which were frequently linked to civic engagement programs. In academic settings, sustainability themes appeared in case analyses, corporate social responsibility discussions, and resource-efficiency projects. This pattern supports existing literature emphasizing that experiential and applied learning strategies enhance sustainability competencies by linking theory to practice (Lozano et al., 2015; Sterling, 2011; Filho et al., 2019).

Notably, several responses indicate integration into core business subjects, in which students developed sustainable business plans, evaluated the environmental impacts of enterprises, or designed products using recycled materials. Such applications reflect a shift from awareness to practical problem-solving, consistent with competency-based sustainability education models

(Wiek et al., 2011). However, the variability in reported exposure suggests that these practices may depend on individual instructors or specific course contexts rather than program-wide design.

The presence of sustainability themes across economics, governance, and leadership-related discussions further indicates that integration is not confined to environmental topics but extends to broader societal and managerial responsibilities. This observation aligns with holistic approaches to sustainability education that emphasize interdisciplinary and multi-dimensional perspectives (Huckle & Wals, 2015).

Overall, the findings indicate meaningful but uneven engagement with sustainability-related activities. While many students experience applied sustainability learning, a substantial proportion of students lack exposure, pointing to the need for more structured, consistent, curriculum-wide integration. This reinforces calls in the literature for systematic embedding of sustainability principles across programs rather than reliance on isolated initiatives (Barth & Rieckmann, 2012).

Familiarity with the Sustainability Area.

Building on students' experiences with sustainability-related activities, it is also important to examine their familiarity with specific areas of sustainability. While engagement in activities provides practical exposure, understanding the different dimensions of sustainability—environmental, economic, and social—reflects the depth of students' conceptual knowledge. The next section explores how well students can identify and relate to various sustainability areas, shedding light on the effectiveness of curricular integration and experiential learning in fostering comprehensive sustainability awareness.

Table 4. Summary of Central Tendency Measures on Sustainability Familiarity

Category	Mean	Median	Mode
Environmental Sustainability	3.14	3.00	2.00
Social Sustainability	3.02	3.01	3.00
Economic Sustainability	2.98	2.97	2.96

Table 4 indicates that students demonstrate moderate familiarity across all three sustainability dimensions, with responses clustering around the midpoint of the scale. Environmental sustainability registers slightly higher relative familiarity, followed closely by social sustainability, while economic sustainability appears marginally less developed. The narrow differences among the means suggest that students possess a generally balanced, though not advanced, understanding of sustainability's core dimensions.

The pattern implies awareness rather than deep conceptual mastery. Students appear more comfortable with environmentally oriented themes—such as conservation and eco-friendly practices—likely reflecting the greater visibility of environmental discourse in public and educational contexts. Social sustainability familiarity is comparably strong, indicating recognition of the themes of equity, community engagement, and corporate responsibility. Economic sustainability, while only slightly lower, may reflect a more limited explicit emphasis in coursework, particularly when sustainability initiatives are framed primarily as environmental or community-based projects.

This moderate and relatively even distribution aligns with prior research showing that sustainability exposure in higher education often produces general awareness but not necessarily integrated or competency-based understanding (Ahmad et al., 2023; Duran & Mariñas, 2024). Studies have similarly found that students' familiarity improves when sustainability concepts are reinforced through experiential and cross-disciplinary applications rather than treated as

peripheral topics (Abowardah et al., 2024; Boned-Gómez et al., 2024). The findings also echo international evidence suggesting that economic sustainability tends to receive comparatively less emphasis unless intentionally embedded within business and management frameworks (Zorba et al., 2024; Huang et al., 2024).

Overall, the results suggest that students possess foundational familiarity with sustainability's environmental, social, and economic pillars, but the moderate levels indicate room for deeper integration. Strengthening curricular coherence across all three dimensions may help move students from general awareness toward more comprehensive sustainability literacy. These findings provide an important foundation for examining whether such familiarity translates into understanding of the broader SDG framework.

Familiarity with UN SDGs

Building on the students' familiarity with the three dimensions of sustainability—environmental, social, and economic—the study further examined how this awareness translates into an understanding of the United Nations Sustainable Development Goals (UN SDGs). The results reveal a moderate overall familiarity among students, with a mean score of 2.63, a median of 3, and a mode of 3 (Moderately Familiar).

The distribution of responses shows that 36.3% of respondents rated themselves as moderately familiar, while a considerable 43.1% (categories 1 and 2) reported low familiarity. Only 20.6% indicated high familiarity ("Very familiar" or "Extremely familiar"), suggesting that deeper comprehension of the UN SDGs is limited to a smaller subset of students. This pattern mirrors global trends in higher education, where students often possess fragmented or surface-level knowledge of the UN SDGs unless the UN SDGs are formally integrated into the curriculum (Filho et al., 2020).

Table 5. Students' Familiarity with the UN SDGs

Familiarity Level	Description	Frequency (f)	% of Total	Cumulative %
5	Extremely familiar	6	5.9%	5.9%
4	Very familiar	15	14.7%	20.6%
3	Moderately familiar	37	36.3%	56.9%
2	Somewhat familiar	23	22.5%	79.4%
1	Not familiar at all	21	20.6%	100.0%
Mean	—	—	2.63	—
Median	—	—	3.00	—

Students' open-ended responses indicate selective recognition of specific SDGs, particularly those frequently emphasized in public discourse and educational contexts, such as poverty reduction, quality education, gender equality, responsible consumption, and climate action. This pattern suggests that students are exposed to sustainability themes that are socially visible and commonly integrated into civic or environmental discussions. The findings reinforce the view that higher education introduces learners to global sustainability challenges, but exposure may be issue-specific rather than framework-based (Orr, 1992; Cortese, 2003).

A smaller group of respondents demonstrated broader awareness by identifying multiple SDGs or linking them to applied course activities, including community engagement initiatives and sustainable business planning. These responses suggest that experiential and service-oriented learning contexts may enhance students' ability to connect curricular content to the SDG framework. This observation aligns with literature emphasizing that sustainability literacy deepens

when academic content is reinforced through practice-based and community-integrated approaches (Cortese, 2003; Madeira et al., 2011).

However, the substantial number of responses indicating no familiarity with specific SDGs suggests fragmented exposure across programs. Rather than reflecting a comprehensive understanding of the SDGs as an interconnected global agenda, students' awareness appears to be concentrated on a limited subset of goals. This uneven familiarity mirrors broader findings in sustainability education research, which indicate that while sustainability discourse is present in higher education, systematic SDG alignment across curricula remains inconsistent (Kagawa, 2007; Venkataraman, 2009).

Overall, the findings suggest emerging but incomplete SDG literacy among business students. Students can recognize selected goals—particularly those linked to visible environmental and social issues—but demonstrate limited grasp of the SDGs as an integrated framework encompassing economic and institutional dimensions. This pattern underscores the need for more intentional curricular mapping that situates individual sustainability topics within the broader SDG framework and promotes systems-thinking competencies (Orr, 1992; Cortese, 2003; UNESCO, 2004).

Perceived Importance of Sustainability Integration

Table 6. Distribution of Responses on the Perceived Importance of Sustainability Integration

Response	Description	Frequency	Percentage	Cumulative %
5	Strongly Agree	33	32.4%	32.4%
4	Agree	49	48.0%	80.4%
3	Neutral	16	15.7%	96.1%
2	Disagree	3	2.9%	99.0%
1	Strongly Disagree	1	1.0%	100.0%
Total	—	102	100.0%	—

Table 6 indicates a strong positive perception regarding the importance of integrating sustainability into the business curriculum ($M = 3.92$), placing the overall response within the “Agree” range. Responses cluster toward the upper end of the scale, suggesting that sustainability is widely regarded as relevant and meaningful to students’ academic and professional formation. Only a small minority expressed disagreement, while a limited proportion remained neutral, indicating that resistance to sustainability integration is minimal within the sample.

This strong endorsement suggests that students not only recognize sustainability as present in their coursework but also perceive it as valuable. The finding reinforces longstanding arguments that higher education plays a central role in cultivating competencies necessary for ecological stewardship and social responsibility (Cortese, 2003; Wright, 2004). Students’ open-ended responses further illustrate how they interpret this importance in practical and personal terms. Many described sustainability education as enhancing their ability to “evaluate long-term impacts” and “make informed decisions,” reflecting the development of systems thinking and problem-solving skills emphasized in sustainability education literature (Lozano, 2011; MacVaugh & Norton, 2011).

Students also connected the integration of sustainability directly to professional readiness. Several noted that it prepares them “to make responsible decisions” or gives them “an edge in

sustainable finance and green investments.” Such responses suggest that students perceive sustainability not merely as an ethical ideal but as a practical competency aligned with evolving business expectations. This aligns with scholarship arguing that business education must equip graduates with forward-looking, sustainability-oriented decision-making skills to remain relevant in contemporary industries (Cortese, 2003).

Beyond professional preparation, responses frequently referenced ethical growth and social awareness. Students associated sustainability with responsibility, empathy, and a commitment to contributing positively to society. These reflections echo UNESCO’s (2004) view of sustainability education as a value-driven process that fosters moral reasoning and global citizenship. Similarly, environmental stewardship emerged in student statements emphasizing resource conservation and ecological responsibility, reinforcing findings that sustainability education strengthens environmental consciousness when integrated into coursework (Filho et al., 2007; Wright, 2004).

Notably, several students highlighted that integrating sustainability makes learning more relevant and connected to real-world issues, describing it as “future-focused” and applicable beyond the classroom. This observation supports critiques of traditional education as overly abstract and disconnected from societal challenges (Orr, 1992), and aligns with research indicating that contextualized sustainability content enhances perceived relevance and engagement (Kagawa, 2007; Lozano, 2011).

Taken together, the quantitative results and embedded student reflections indicate a strong perceived importance of sustainability integration across cognitive, professional, ethical, and practical dimensions. While earlier findings revealed only moderate familiarity and uneven exposure, the high perceived value suggests that students are receptive to deeper and more systematic integration. This combination of moderate familiarity but strong perceived importance points to an opportunity for curriculum designers to build upon existing positive attitudes and strengthen structured, program-wide sustainability embedding.

Cross-Table Synthesis and Interpretation of Contradictory Findings

A cross-analysis of the findings reveals several internal tensions that merit deeper interpretation. While students perceive the integration of sustainability as moderately present and highly important, nearly half report no direct exposure to sustainability-related activities. At the same time, economic sustainability received the lowest familiarity score among the three dimensions. These patterns suggest that sustainability integration within the program is emerging but not yet fully institutionalized. Similar inconsistencies have been documented in higher education contexts where sustainability is acknowledged at the policy level but unevenly implemented at the curricular level (Lozano et al., 2015; Huckle & Wals, 2015; Alfathy et al., 2024).

Uneven Exposure to Sustainability Activities

The finding that a substantial proportion of students report no encounter with sustainability activities appears inconsistent with the overall positive perception of sustainability’s importance. One plausible explanation is that sustainability integration may be instructor-dependent rather than program-wide. Research consistently shows that without structured institutional frameworks and faculty development mechanisms, sustainability efforts tend to remain fragmented (Barth & Rieckmann, 2012; Duran & Mariñas, 2024; Christou et al., 2024). Lozano et al. (2015) further argue that many universities demonstrate commitment rhetorically but struggle with systematic curricular implementation.

Another explanation may lie in how sustainability is framed within courses. Students may engage in activities aligned with sustainability principles—such as ethical case analysis, resource-efficiency discussions, or community engagement—without these activities being explicitly labeled

as sustainability initiatives. Studies emphasize that explicit curricular framing and competency alignment are critical for meaningful recognition and internalization of sustainability learning (Ahmad et al., 2023; Rusinko, 2010; Sánchez-Carracedo et al., 2021). The contradiction between perceived integration and limited reported exposure may therefore reflect gaps in curricular visibility rather than the absence of content.

Moreover, experiential learning plays a central role in developing sustainability competencies (Wiek et al., 2011; Sterling, 2011; Filho et al., 2019). When experiential components are not consistently embedded across courses, students' engagement becomes uneven. Thus, the observed variability strengthens the interpretation that sustainability efforts may still rely on isolated initiatives rather than systemic curriculum design.

Gender Distribution and Its Possible Influence

The predominance of female respondents introduces another interpretive dimension. Empirical studies have shown that female students often exhibit stronger environmental concern and more favorable attitudes toward sustainability-related issues (Zelezny et al., 2000). This may partially explain the high level of agreement on the importance of integrating sustainability. However, the internal inconsistencies across the dataset complicate a purely demographic explanation.

Despite a female-majority sample, familiarity levels remain moderate and exposure uneven. This suggests that structural curricular factors likely exert greater influence than gender composition alone. Research on sustainability integration in higher education underscores that institutional design, faculty engagement, and whole-program alignment are stronger determinants of sustainability literacy than demographic characteristics (Christou et al., 2024; Alfathy et al., 2024). Therefore, while gender distribution may modestly influence attitudinal positivity, it does not sufficiently account for the fragmentation observed in experiential exposure and dimensional familiarity.

The "Discipline Irony": Economic Sustainability Scoring Lowest

A particularly notable finding is that economic sustainability received the lowest familiarity score, which may appear paradoxical within a business-oriented academic program. However, this result reflects a broader challenge documented in sustainability education literature: traditional economic instruction is often not explicitly framed within sustainability paradigms (Singh et al., 2011; Sisaye, 2013).

Business curricula frequently emphasize profitability, financial reporting, and operational efficiency without explicitly connecting these concepts to long-term sustainable development goals, intergenerational equity, or systems-based economic thinking. As Benn and Rusinko (2011) argue, sustainability in business education requires reframing core subjects rather than adding standalone sustainability topics. Similarly, Schlesinger et al. (2013) highlight the importance of embedding sustainability reporting and responsible financial analysis into accounting curricula to bridge this conceptual gap.

The lower familiarity score may therefore indicate not a deficiency in economic knowledge but a lack of explicit integration between economic concepts and sustainability discourse. Environmental sustainability, by contrast, is often reinforced through visible activities such as clean-up drives or climate-related discussions, making it more recognizable to students. This imbalance aligns with findings that sustainability integration frequently emphasizes environmental dimensions more prominently than economic or systemic perspectives (Huckle & Wals, 2015; Filho et al., 2019).

Integrative Interpretation.

Taken together, the contradictions observed across exposure, familiarity, and dimensional emphasis suggest that sustainability integration in the program is progressing but remains partially fragmented. Students value sustainability highly—consistent with findings from [Abowardah et al. \(2024\)](#) and [Huang et al. \(2024\)](#)—yet experiential engagement varies, and dimensional balance is uneven. These tensions mirror global patterns in higher education, where institutions demonstrate a growing commitment to sustainability yet continue to face challenges in achieving holistic, systems-based integration ([Lozano et al., 2015](#); [Christou et al., 2024](#)).

Rather than weakening the study's conclusions, these contradictions provide critical insight. They highlight the need for clearer curricular mapping, explicit alignment of learning outcomes, and whole-institution approaches that coherently integrate environmental, social, and economic sustainability dimensions ([Ahmad et al., 2023](#); [Duran & Mariñas, 2024](#); [UNESCO, 2017](#)). Addressing these gaps would move sustainability integration from selective exposure toward structured, program-wide competency development.

Summary of Findings

This study examined the extent of sustainability integration in the business curriculum and students' awareness, understanding, and perceptions of sustainability and the United Nations Sustainable Development Goals (UN SDGs). The findings indicate that sustainability concepts are present but unevenly embedded across the curriculum, resulting in varying levels of exposure and familiarity. Although a slight majority of students reported engaging in sustainability-related activities, a substantial proportion reported no such exposure, suggesting that integration remains course-specific rather than program-wide. This unevenness reflects patterns observed in the literature, in which sustainability in higher education often depends on individual initiatives rather than on cohesive curricular frameworks.

Students demonstrated moderate familiarity with the environmental, social, and economic dimensions of sustainability. Environmental sustainability showed the highest familiarity, while economic sustainability had the lowest, a notable finding in a business-oriented program. This pattern suggests that while business students are trained in economic concepts, these are not always explicitly framed within sustainability paradigms, highlighting a potential disconnect between disciplinary content and sustainability discourse. The results point to the need for clearer articulation of how financial, managerial, and operational topics align with long-term sustainable development principles.

With respect to the UN SDGs, students exhibited emerging but incomplete literacy. While commonly recognized goals such as Quality Education, No Poverty, Gender Equality, Climate Action, and Responsible Consumption and Production were identified, many respondents reported limited familiarity with them or were unable to specify specific goals. This indicates that the UN SDGs are not yet consistently institutionalized as an organizing framework for sustainability learning across the curriculum.

Despite moderate familiarity and uneven exposure, students expressed a strongly positive view of the importance of integrating sustainability. The high level of agreement suggests that students value sustainability as essential for professional preparation, ethical decision-making, and real-world relevance. However, the predominance of female respondents—often associated in the literature with stronger pro-environmental attitudes—may have contributed to the overall positivity of the attitudinal measures, though this demographic factor does not fully account for inconsistencies in exposure and familiarity.

Overall, the findings suggest that sustainability integration within the business program is progressing but remains partially fragmented. Students recognize its importance and demonstrate

a foundational understanding. However, inconsistencies in experiential engagement and in dimensional emphasis indicate the need for more systematic curricular mapping, explicit alignment with the UN SDGs, and the integrated treatment of environmental, social, and economic sustainability across all business disciplines.

CONCLUSIONS

This study assessed the integration of sustainability within the business curriculum and examined students' familiarity with sustainability concepts and the United Nations Sustainable Development Goals (UN SDGs). The findings indicate that sustainability is present in the curriculum but not yet systematically or consistently embedded across all business courses. While many students reported exposure to sustainability-related activities and demonstrated moderate familiarity with sustainability dimensions, a substantial proportion indicated limited or no experiential engagement, revealing uneven implementation across subjects.

A notable contribution of this study is its identification of the internal tensions in sustainability integration. Students expressed strong appreciation for the importance of sustainability education, yet their exposure and familiarity levels remained moderate rather than advanced. Moreover, economic sustainability, arguably central to business education, scored lowest among the three sustainability dimensions, highlighting a "discipline irony" in which economic concepts are taught but not explicitly framed within sustainability discourse. These contradictions suggest that sustainability is conceptually valued but not yet structurally institutionalized within the program.

Rather than simply confirming that sustainability matters in higher education, the findings illuminate a critical transitional stage: sustainability integration is emerging yet remains fragmented. The results point to a gap between attitudinal endorsement and systemic curricular design. This distinction contributes to the growing body of literature by demonstrating that student support alone does not ensure comprehensive sustainability literacy; coherent curricular alignment, explicit framing, and balanced emphasis across dimensions are essential.

Overall, the study concludes that advancing sustainability integration in business education requires moving from selective incorporation toward deliberate, program-wide embedding of environmental, social, and economic sustainability principles aligned with the UN SDGs. Without such structural coherence, sustainability risks remain peripheral rather than transformative within business curricula.

Recommendations

Based on these findings, several recommendations are proposed to strengthen the integration of sustainability and the UN SDGs within higher education. First, higher education institutions should implement structured curriculum mapping to ensure that sustainability and the UN SDGs are embedded across all core and major business subjects. Integration should move beyond isolated activities toward aligned learning outcomes, assessments, and competencies that systematically develop sustainability literacy.

Second, faculty development initiatives should be strengthened to support interdisciplinary and sustainability-oriented pedagogy. Training programs can assist faculty in reframing traditional business concepts—such as finance, accounting, operations, and strategy—within sustainability paradigms, particularly to address the observed gap in recognition of economic sustainability.

Third, institutions should expand and standardize experiential learning opportunities aligned with sustainability goals. Community-based projects, sustainability reporting exercises, ethical decision-making simulations, and SDG-linked case analyses can help bridge the gap between conceptual awareness and applied competency.

Fourth, the UN SDGs should be adopted not merely as thematic references but as an organizing framework for curriculum design. Explicit integration of UN SDG targets in syllabi, assessments, and performance indicators can strengthen coherence and improve student recognition of sustainability as an interconnected system.

Finally, future research should examine gender-disaggregated patterns in sustainability perception and conduct longitudinal studies to assess how sustained curricular integration influences professional competencies over time. Including faculty perspectives and institutional audits would further clarify the structural conditions necessary for holistic sustainability education.

LIMITATION & FURTHER RESEARCH

Despite this study's contributions to the examination of sustainability integration within business and accountancy curricula, several limitations should be acknowledged. First, the study employed a cross-sectional survey design to capture students' perceptions and familiarity with sustainability and the UN Sustainable Development Goals (UN SDGs) at a single point in time. While this approach is appropriate for assessing prevailing attitudes and awareness levels, it does not allow for causal inference or the examination of changes in sustainability literacy as students progress through their academic programs. Longitudinal designs would enable future research to track how sustained curricular exposure influences students' understanding of sustainability and professional competencies over time.

Second, the study relied primarily on self-reported measures, which are subject to social desirability bias and subjective interpretation. Students may overestimate their familiarity with sustainability concepts or the perceived importance of sustainability integration due to normative expectations within academic environments. Although qualitative responses helped contextualize the quantitative ratings, future studies may benefit from incorporating objective measures, such as performance-based assessments, curriculum audits, or scenario-based evaluations, to triangulate self-reported perceptions.

Third, the study's geographical and institutional scope was limited to selected higher education institutions in Misamis Occidental and Zamboanga del Norte. While this focus provides valuable localized insights, it limits the generalizability of the findings to other regions or institutional types. Expanding the sample to include public and private universities across different regions of the Philippines—or conducting cross-country comparisons—would enhance external validity and allow for broader contextual analysis of sustainability integration in business education.

Additionally, some constructs, such as familiarity with the UN SDGs, were measured using single-item indicators. While appropriate for descriptive purposes, single-item measures limit the ability to assess internal consistency and capture the multidimensional nature of SDG literacy. Future research could develop and validate multi-item scales of SDG familiarity or literacy that reflect both conceptual understanding and practical application.

Finally, while the study identified high perceived importance of sustainability integration, it did not directly examine instructional practices, faculty readiness, or institutional policies that enable or constrain effective implementation. Future research may adopt mixed-methods approaches to explore how curriculum design, teaching strategies, and institutional support mechanisms influence students' sustainability learning outcomes. Investigating the alignment between student perceptions and actual curricular content would further strengthen evidence-based recommendations for higher education institutions.

Overall, addressing these limitations in future studies will contribute to a more nuanced understanding of how sustainability education can be systematically embedded within business curricula and translated into meaningful student learning and professional practice.

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