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INTEGRATION OF THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) AND ITS RELATIONSHIP TO TEACHERS' KNOWLEDGE, ATTITUDES, AND TEACHING PRACTICES IN THE LOON DISTRICTS, BOHOL

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ABSTRACT

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Education for Sustainable Development (ESD) plays a crucial role in advancing the Sustainable Development Goals (SDGs) by equipping learners with the knowledge, values, and competencies necessary for sustainable futures. This study examined the relationship among teachers' knowledge of the SDGs, attitudes toward sustainable development, and ESD integration practices among Grade 9 and Grade 10 teachers in the Loon Districts of Bohol. A quantitative descriptive-correlational research design was employed. Findings revealed that teachers possessed a moderate level of SDG knowledge, with environmental sustainability receiving the highest knowledge scores and economic sustainability the lowest. Despite this, respondents demonstrated strongly positive attitudes toward sustainable

development and a very high level of ESD integration in classroom instruction. Correlation analysis showed significant but weak positive relationships between selected SDG knowledge dimensions and social sustainability attitudes. Moreover, attitudes toward sustainable development, particularly environmental and educational attitudes, were significantly associated with sustainability integration practices. The findings suggest that attitudes play a more influential role than knowledge in shaping ESD implementation. The study highlights the importance of strengthening teachers' sustainability literacy while fostering positive attitudes that support the meaningful integration of sustainability concepts into teaching and learning.

INTRODUCTION

The adoption of the 2030 Agenda for Sustainable Development marked a global commitment to addressing pressing social, economic, and environmental challenges through seventeen interconnected Sustainable Development Goals (SDGs). These goals provide a comprehensive framework for promoting human well-being, environmental sustainability, and inclusive development while ensuring that future generations can meet their own needs (United Nations, 2015). However, recent assessments indicate that progress toward many SDG targets remains insufficient, underscoring the need for stronger, more coordinated efforts across sectors, including education (United Nations General Assembly Economic and Social Council, 2024).

Education is widely recognized as a key driver of sustainable development. Sustainable Development Goal 4 emphasizes not only access to quality education but also the acquisition of knowledge, skills, values, and attitudes necessary to promote sustainable societies. Through Education for Sustainable Development (ESD), learners are encouraged to critically examine complex global issues and develop competencies that support responsible decision-making and sustainable lifestyles (UNESCO, 2017). As such, schools play a vital role in preparing learners to contribute meaningfully to achieving the SDGs.

Teachers occupy a central position in advancing ESD because they influence how sustainability concepts are interpreted, contextualized, and integrated into classroom instruction. Their knowledge of the SDGs, attitudes toward sustainable development, and instructional practices shape learners' opportunities to engage with sustainability-related issues. Previous studies suggest that while teachers often demonstrate positive attitudes toward sustainable development, their knowledge and implementation of sustainability concepts vary considerably across contexts (Pegalajar-Palomino et al., 2021; Calero et al., 2024). These variations may affect the extent to which ESD is meaningfully integrated into teaching and learning processes.

While international studies have examined teachers' sustainability knowledge and attitudes, few investigations have simultaneously explored

the relationships among SDG knowledge, sustainability attitudes, and ESD integration practices in the Philippine secondary school context. Moreover, empirical evidence simultaneously examining teachers' SDG knowledge, attitudes toward sustainable development, and ESD integration practices remains limited. This gap underscores the need for context-specific evidence to inform sustainability-oriented teacher development programs.

Addressing this gap is important because the successful implementation of ESD depends not only on curriculum policies but also on teachers' capacity to translate sustainability principles into meaningful learning experiences. While previous studies have explored teachers' sustainability knowledge or attitudes separately, fewer studies have examined how these variables interact to influence sustainability-oriented instructional practices in secondary education, particularly within the Philippine context.

Hence, this study examined the relationship between teachers' knowledge of the SDGs, attitudes toward sustainable development, and the integration of ESD practices among Grade 9 and Grade 10 teachers in the Loon District of Bohol. The findings are expected to contribute to curriculum enhancement, teacher professional development, and the development of evidence-based strategies to strengthen sustainability education in Philippine schools.

Theoretical Background. This study is anchored in the Knowledge-Attitude-Practice (KAP) Framework, the Theory of Planned Behavior, and Transformative Pedagogy. These theoretical perspectives provide a basis for understanding how teachers' knowledge of the Sustainable Development Goals (SDGs), attitudes toward sustainable development, and integration practices for Education for Sustainable Development (ESD) are interconnected.

The **Knowledge-Attitude-Practice (KAP) Framework** serves as the study's primary theoretical foundation. The framework posits that knowledge influences attitudes, which in turn shape behavior or practice. In educational settings, teachers who possess adequate knowledge of sustainability concepts are more likely to develop favorable attitudes toward sustainable development and subsequently integrate these concepts into classroom instruction. The framework has been widely applied in educational and public health research to examine how awareness and perceptions influence behavioral outcomes. In this study, teachers' knowledge of the SDGs is expected to foster positive attitudes toward sustainability and support the implementation of ESD-related practices.

The study is further informed by the **Theory of Planned Behavior (TPB)** proposed by Ajzen (2020). TPB explains that attitudes, subjective norms, and perceived behavioral control influence behavior. Individuals are more likely to engage in a particular behavior when they view it positively, perceive social support for it, and believe they have the capacity to perform it successfully. Applied to the present study, teachers who hold positive attitudes toward sustainable development and perceive ESD as important and achievable are more likely to integrate sustainability concepts into their instructional

practices. The theory provides a useful explanation of why favorable attitudes may influence classroom implementation even when knowledge levels vary.

The third theoretical anchor is **Transformative Pedagogy**, a central educational perspective for ESD. Transformative Pedagogy encourages critical reflection, active participation, and engagement with real-world issues to promote meaningful social change (Bonello & Pace, 2022). Rather than viewing learning as the mere transmission of information, this approach emphasizes empowering learners to become responsible, active contributors to sustainable societies. In the context of ESD, teachers play a crucial role in creating learning experiences that foster sustainability awareness, critical thinking, and responsible action. Effective integration of SDG-related concepts therefore requires not only knowledge of sustainability issues but also a commitment to transformative teaching practices.

Taken together, these theories provide a coherent explanation of the study variables. The KAP Framework explains the progression from knowledge to attitudes and practices, the Theory of Planned Behavior highlights the influence of attitudes on behavioral intentions and actions, and Transformative Pedagogy underscores the role of teachers in translating sustainability knowledge into meaningful educational experiences. Collectively, these perspectives support the examination of teachers' knowledge of the SDGs, attitudes toward sustainable development, and integration practices for Education for Sustainable Development in secondary schools.

Review of Related Literature and Studies. Sustainable development has become a central concern in education because schools are expected to prepare learners to respond to social, economic, and environmental challenges. The 2030 Agenda frames sustainable development as an integrated global commitment that requires coordinated action across sectors, including education (United Nations, 2015). Within this framework, Education for Sustainable Development (ESD) enables learners to acquire the knowledge, values, skills, and dispositions needed to contribute to more sustainable societies (UNESCO, 2017).

The literature emphasizes that ESD should not be treated as an isolated topic but as an interdisciplinary approach embedded across learning areas. Annan-Diab and Molinari (2017) noted that interdisciplinarity is essential in advancing sustainability education because sustainability problems are complex and cannot be addressed through a single discipline. This perspective is especially relevant in basic education, where teachers are expected to integrate sustainability concepts into existing subject areas rather than teach the SDGs as a separate course.

Teachers play a critical role in translating sustainability goals into classroom practice. Their knowledge of the SDGs may influence how they identify sustainability-related content, while their attitudes toward sustainable development may shape their willingness to integrate ESD into instruction. However, studies suggest that teachers' understanding of sustainability is often

uneven. Some teachers demonstrate a general awareness of the SDGs but have a limited understanding of the interconnections among the environmental, social, and economic dimensions (Calero et al., 2024). Similarly, systematic reviews on ESD in teacher education indicate that although teachers and pre-service teachers often express favorable attitudes toward sustainability, actual classroom integration may remain inconsistent without sufficient training, resources, and pedagogical support (Pegalajar-Palomino et al., 2021).

Environmental sustainability also tends to receive greater instructional attention than the economic and social dimensions of sustainable development. This pattern may be linked to the historical roots of ESD in environmental education and to the greater visibility of environmental issues in school curricula. However, a narrow emphasis on environmental themes may limit learners' understanding of sustainability as a holistic concept that also includes equity, poverty reduction, peace, responsible consumption, and inclusive development. Boeve-de Pauw et al. (2015) emphasized that effective ESD should promote holistic and pluralistic learning experiences that help learners examine sustainability issues from multiple perspectives.

Recent studies continue to highlight gaps in teachers' knowledge of the SDGs and in ESD implementation. Calero et al. (2024) found that pre-service teachers' knowledge of the SDGs varied across goal areas, suggesting the need for more systematic preparation in sustainability education. In the same direction, Pegalajar-Palomino et al. (2021) observed that teacher education programs must strengthen opportunities for future teachers to engage with ESD principles and transformative pedagogies. These findings suggest that positive attitudes alone may not be sufficient; teachers also need conceptual clarity, curriculum alignment, and practical strategies for meaningful integration.

Transformative pedagogy is particularly relevant to ESD because it encourages learners to critically examine real-world issues and participate in actions that promote justice, equity, and sustainability. Rather than simply transmitting information about the SDGs, ESD requires teachers to design learning experiences that connect sustainability concepts with local contexts and learners' lived realities. UNESCO (2017) emphasized that ESD should develop cognitive, socio-emotional, and behavioral competencies, thereby enabling learners not only to understand sustainability issues but also to act responsibly.

Despite the growing body of international literature on SDG awareness and ESD implementation, local evidence remains limited, particularly in Philippine secondary schools. Few studies have simultaneously examined teachers' knowledge of the SDGs, attitudes toward sustainable development, and actual integration practices. Addressing this gap is important because the successful implementation of ESD depends not only on teachers' favorable perceptions but also on their capacity to translate sustainability principles into classroom-ready learning experiences.

Thus, the present study contributes to the literature by examining the relationship among teachers' knowledge of the SDGs, attitudes toward sustainable development, and ESD integration practices in the Loon Districts of Bohol. By examining the relationships among teachers' SDG knowledge, attitudes toward sustainable development, and ESD integration practices, the study contributes empirical evidence on factors associated with sustainability-oriented teaching in Philippine secondary schools.

RESEARCH METHODOLOGY

Research Design. This study employed a quantitative descriptive-correlational research design. The descriptive component was used to determine teachers' knowledge of the Sustainable Development Goals (SDGs), attitudes toward sustainable development, and integration practices for Education for Sustainable Development (ESD). The correlational component examined the relationships among these variables. The design was deemed appropriate because it enabled the systematic description of teachers' sustainability-related competencies and the examination of associations among knowledge, attitudes, and instructional practices.

Research Setting and Participants.Research Participants. The study involved Grade 9 and Grade 10 teachers from public secondary schools in the Loon District, Division of Bohol, Philippines. The target population consisted of 129 teachers who were actively engaged in classroom instruction during the study period. To ensure that respondents possessed the necessary pedagogical competencies and formal preparation for instructional practice, only licensed teachers or those with professional education units were included in the study.

The minimum required sample size was determined using a 95% confidence level and a 5% margin of error, resulting in a computed sample of 97 respondents. To improve statistical precision, enhance representativeness, and compensate for potential nonresponse or incomplete responses, the sample size was increased by 20%, resulting in a final target sample of 116 teachers.

A proportional stratified random sampling procedure was adopted to ensure that participating schools were represented in proportion to their respective teacher populations. Within each stratum, respondents were selected via simple randomization using a computer-generated list to ensure that every qualified instructor had an equal chance of being selected and to minimize sampling bias. This method improved the representativeness of the sample and the validity of the findings for the study population.

Inclusion and Exclusion Criteria. The participants in the study were Grade 9 and Grade 10 teachers employed in public secondary schools in Loon District at the time of the study and holding professional education certifications. Teachers on long-term leave, teachers primarily responsible for administrative duties, and teachers not belonging to a professional education unit were excluded from participation to ensure that the respondents had

direct instructional duties and comparable professional preparation relevant to Education for Sustainable Development.

Research Instrument. The quantitative results were obtained using a standardized questionnaire consisting of three sections: understanding of the SDGs, attitudes towards sustainable development, and integrating practices for ESD. The knowledge section measured respondents' knowledge of the SDGs and sustainability concepts. The attitude portion evaluated teachers' perceptions and attitudes towards sustainable development, while the integration practices section assessed the extent to which sustainability concepts were incorporated into teaching and learning activities. Experts in curriculum studies, educational administration, and education for sustainability evaluated the measure. The text was revised based on their feedback to ensure its accuracy. Internal consistency was good, with Cronbach's alpha values in the pilot test ranging from 0.87 to 0.93. Content validity was established through expert assessment by experts in sustainable education, curriculum studies, and educational administration.

Data Collection Procedures. Approval to conduct the study was obtained from the Schools Division Office and school administrators prior to data collection. After securing informed consent, questionnaires were distributed to the respondents. The completed questionnaires were retrieved, checked for completeness, and prepared for analysis.

Data Analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to describe the respondents' knowledge of the SDGs, attitudes toward sustainable development, and integration practices for ESD. Pearson Product-Moment Correlation was employed to determine the relationships among the study variables. All statistical analyses were performed at a 0.05 significance level.

Ethical Considerations. The study adhered to established ethical principles in educational research. Participation was voluntary, and informed consent was obtained from all respondents. Participants were informed of the purpose of the study, their right to withdraw at any time, and the confidentiality of the information they provided. All data were treated with strict confidentiality and used solely for academic and research purposes. The identities of the participants and schools were protected throughout the study's conduct and reporting.

RESULTS AND DISCUSSION

Teachers' Knowledge of the Sustainable Development Goals. Table 1 shows that teachers demonstrated a **moderate level of knowledge** of the Sustainable Development Goals (SDGs), with a composite mean percentage score of 57.67. Among the dimensions, environmental sustainability obtained the highest score (MPS = 65.73), while economic sustainability recorded the lowest (MPS = 50.97).

Table 1. *Teachers' Knowledge of the Sustainable Development Goals*

Dimension	Mean Percentage Score (MPS)	Interpretation
Overview of the SDGs	63.22	Moderate Knowledge
Environmental Sustainability	65.73	Moderate Knowledge
Economic Sustainability	50.97	Moderate Knowledge
Social Sustainability	52.16	Moderate Knowledge
Composite MPS	**57.67**	**Moderate Knowledge**

Note. Interpretation based on the adopted knowledge scale.

The findings suggest that teachers possess a general awareness of sustainability concepts but may have a limited understanding of the broader, more technical dimensions of sustainable development. The stronger performance in environmental sustainability is consistent with studies showing that educators often associate sustainability primarily with environmental concerns because of the longstanding influence of environmental education (Maidou et al., 2019; Said et al., 2021). Conversely, the lower level of knowledge on economic sustainability may reflect limited exposure to sustainability concepts related to economic systems, responsible consumption, and sustainable growth (Calero et al., 2024).

Teachers' Attitudes Toward Sustainable Development. As shown in Table 2, teachers exhibited a **strongly positive attitude** toward sustainable development, with an overall mean of 3.66. Social sustainability obtained the highest mean, followed by educational, environmental, and economic sustainability.

Table 2. *Teachers' Attitudes Toward Sustainable Development*

Dimension	**Mean**	**Interpretation**
Social Sustainability	3.78	Strongly Positive Attitude
Educational Sustainability	3.72	Strongly Positive Attitude
Environmental Sustainability	3.60	Strongly Positive Attitude
Economic Sustainability	3.53	Strongly Positive Attitude
Composite Mean	**3.66**	**Strongly Positive Attitude**

Note. Higher scores indicate more favorable attitudes toward sustainable development.

The result indicates that teachers generally recognize the value of sustainability and support its integration into educational practice. Interestingly, social sustainability emerged as the strongest attitudinal dimension, suggesting that teachers may be particularly concerned with equity, inclusion, social responsibility, and community well-being. This finding contrasts with studies that report a stronger emphasis on environmental sustainability among educators (Pegalajar-Palomino et al., 2021; Soysal et al., 2021), highlighting

the contextual nature of sustainability perceptions.

Teachers' Integration Practices for Education for Sustainable Development. Table 3 reveals that teachers demonstrated a **very high level of ESD integration**, with a composite mean of 3.53. Environmental sustainability was the most integrated dimension, closely followed by social sustainability.

Table 3. *Teachers' Integration Practices for Education for Sustainable Development*

Dimension	Mean	Interpretation
Environmental Sustainability	3.56	Very High Integration
Social Sustainability	3.55	Very High Integration
Economic Sustainability	3.48	Very High Integration
Composite Mean	**3.53**	**Very High Integration**

Note. Higher scores indicate greater integration of sustainability concepts in classroom instruction.

The importance of environmental themes is consistent with the literature, which shows that the inclusion of sustainability in schools generally concentrates on environmental topics and ecological consciousness (Gunansyah et al., 2021; Idoiaga Mondragon et al., 2023). Interestingly, instructors reported extremely high levels of integration practices despite relatively minimal understanding of the SDGs. One factor might be the embeddedness of sustainability-related issues in the Philippine K–12 Curriculum. This means that instructors may be able to routinely incorporate sustainability principles into existing learning, even with a moderate understanding of the SDGs as a global framework. This indicates that sustainability-oriented teaching could be influenced not only by a formal understanding of the SDGs but also by curricular compulsion, professional experiences, and personal dedication to socially responsible education.

Relationship Between Teachers' Knowledge of the SDGs and Attitudes Toward Sustainable Development. Table 4 presents the relationship between teachers' knowledge of the Sustainable Development Goals (SDGs) and their attitudes toward sustainable development. The results revealed statistically significant positive relationships between environmental knowledge and social attitude ($r = .204$, $p < .05$), economic knowledge and social attitude ($r = .193$, $p < .05$), and overall SDG knowledge and social attitude ($r = .190$, $p < .05$). Although these relationships were weak, they suggest that greater familiarity with sustainability concepts is associated with more favorable attitudes toward social responsibility, equity, and community well-being.

Table 4. *Correlation Between Teachers' Knowledge of the SDGs and Attitudes Toward Sustainable Development (N = 116)*

Knowledge Dimension	Environmental Attitude	Economic Attitude	Social Attitude	Educational Attitude
Overview Knowledge	.011	-.076	.003	.012
Environmental Knowledge	.097	.069	.204*	.152
Economic Knowledge	.111	.126	.193*	.089
Social Knowledge	.051	-.091	.096	.095
Overall SDG Knowledge	.102	.010	.190*	.135

Note. Pearson Product-Moment Correlation was used. $p < .05$.

The findings support the proposition that knowledge contributes to the development of positive attitudes toward sustainability. Teachers who are more knowledgeable about environmental and economic sustainability concerns may be better prepared to understand the social ramifications of these challenges, including inequality, inclusion, and collective responsibility. This is consistent with the Knowledge-Attitude-Practice model, which posits that knowledge is the basis for developing attitudes and then behavior. Research of this type has demonstrated that higher levels of sustainability literacy are associated with more support for sustainable development initiatives and social responsibility (Calero et al., 2024; UNESCO, 2017).

Interestingly, no significant relationships were found between awareness of SDGs and environmental, economic, or educational views. This shows that information alone may not be sufficient to establish all components of sustainable attitudes, and that other variables, such as personal values, professional experiences, and environmental conditions, may also contribute to the formation of attitudes.

Relationship Between Teachers' Attitudes Toward Sustainable Development and Integration Practices for Education for Sustainable Development. Among the observed relationships, educational attitude and economic integration exhibited the strongest association ($r = .383$, $p < .01$), suggesting that teachers who strongly believe in education's role in promoting sustainability are more likely to integrate sustainability concepts into instructional activities. Although the correlations were generally weak to moderate, the findings indicate that favorable attitudes toward sustainability contribute to greater classroom integration of sustainability-related concepts.

Table 5. *Correlation Between Teachers' Attitudes Toward Sustainable Development and Integration Practices for Education for Sustainable Development (N = 116)*

Attitude Dimension	Environmental Integration	Economic Integration	Social Integration
Environmental Attitude	.259**	.343**	.292**
Economic Attitude	.164	.253**	.241**
Social Attitude	.111	.223*	.179
Educational Attitude	.314**	.383**	.296**

Note. Pearson Product-Moment Correlation was used. $p < .05$; *$p < .01$.

The significant relationship between environmental attitudes and integration practices is consistent with previous research demonstrating that teachers who value environmental stewardship are more likely to incorporate sustainability issues into classroom instruction (Negi & Verma, 2023; Zachariou et al., 2017). Teachers who recognize the importance of environmental sustainability may be more inclined to discuss topics such as climate change, resource conservation, environmental justice, and responsible consumption.

Similarly, teachers with positive attitudes toward economic sustainability were more likely to integrate concepts of economic and social sustainability. This finding suggests an awareness of the interconnected nature of sustainability issues, including poverty reduction, decent work, social equity, and community resilience. The result is consistent with the view that sustainable development requires balancing economic growth with social well-being and environmental protection (United Nations, 2015).

The results also indicate that attitudes towards education are a key determinant in the implementation of ESD. Teachers who perceive education as a transformative instrument for sustainable development are more likely to incorporate sustainability themes across environmental, economic, and social domains. This aligns with UNESCO's (2017) claim that teachers are important agents in converting sustainability goals into impactful learning experiences and building competences for sustainable futures.

Overall, the results indicate that attitudes toward sustainable development are more strongly associated with integration practices than knowledge alone. The findings underscore the importance of cultivating positive sustainability attitudes among teachers, as these attitudes appear to facilitate the translation of sustainability principles into classroom practice.

Limitations of the Study. This study focused on Grade 9 and Grade 10 teachers in public secondary schools in the Loon District of Bohol. Thus, the results may not be generalizable to instructors at different levels of schooling or geographic contexts. The study used self-report assessments of attitudes and integrating practices that may be subject to social desirability bias. In addition, the descriptive-correlational methodology does not allow us to draw causal

inferences about the relationship among knowledge, attitudes, and integration practices. Future research might use larger and more diverse samples and investigate other factors that may affect the adoption of Education for Sustainable Development.

The results indicate that teacher development programs should focus not only on expanding knowledge of sustainability but also on fostering favorable attitudes towards sustainable development. It is possible to foster sustainable dispositions among teachers, thereby promoting the incorporation of sustainability principles into classroom instruction and supporting broader institutional initiatives for Education for Sustainable Development.

CONCLUSION

The study found that Grade 9 and Grade 10 teachers in the Loon Districts of Bohol had a moderate level of knowledge of the Sustainable Development Goals, indicating general awareness of sustainability concepts but limited understanding of certain technical and interconnected dimensions, particularly economic sustainability. Environmental sustainability emerged as the strongest area of knowledge, reflecting the continuing influence of environmental education in schools.

Despite low levels of understanding of the SDGs, teachers' attitudes towards sustainable development were quite favorable, and the extent of incorporating sustainability themes into their instructional methods was very high. The social sustainability factor received the highest attitudinal evaluations, while the environmental dimension was the most integrated in classroom instruction. The results indicate that instructors are aware of the importance of sustainability and are integrating sustainability-related themes into teaching and learning.

The study further revealed that selected dimensions of SDG knowledge were significantly associated with social sustainability attitudes. In contrast, attitudes toward sustainable development showed stronger and more consistent relationships with ESD integration practices. In particular, teachers who held favorable attitudes toward environmental sustainability and the role of education in achieving sustainable development were more likely to integrate sustainability concepts across environmental, economic, and social domains. These findings support the view that positive attitudes serve as important drivers of sustainability-oriented teaching practices and that effective ESD implementation depends not only on knowledge acquisition but also on teachers' commitment to sustainability values and educational transformation.

Overall, the findings suggest that while knowledge of the SDGs is important, positive attitudes toward sustainable development may serve as a more immediate driver of sustainability-oriented instructional practices. Strengthening both sustainability literacy and sustainability-related dispositions among teachers may therefore be essential for advancing

Education for Sustainable Development and supporting the achievement of the Sustainable Development Goals in basic education.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

1. School leaders and curriculum planners may strengthen professional development programs on the Sustainable Development Goals, with particular emphasis on economic sustainability and the interrelationships among the environmental, economic, and social pillars of sustainable development.
2. The Department of Education and school administrators may provide sustained training, learning resources, and instructional support to help teachers deepen their understanding of ESD and translate sustainability concepts into meaningful classroom experiences.
3. Teachers may continue integrating sustainability concepts across learning areas while adopting more holistic and interdisciplinary approaches that equally address environmental, social, and economic dimensions of sustainability.
4. Teacher education institutions may enhance sustainability-related content and transformative pedagogies within pre-service and in-service training programs to strengthen both sustainability literacy and positive attitudes toward sustainable development.
5. Future studies may examine additional factors influencing ESD integration, such as self-efficacy, institutional support, curriculum alignment, and professional learning experiences. Multi-site studies involving teachers from different regions may also be conducted to improve the generalizability of findings and provide broader insights into ESD implementation in Philippine schools.

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