
Sustainable Development Goals Literacy Among Public School Teachers in Pangasinan: Knowledge, Attitudes, and Pedagogical Integration in Basic Education

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Abstract

This study examined the Sustainable Development Goals (SDGs) literacy among public school teachers in Pangasinan, Philippines, focusing on knowledge, attitudes, and pedagogical integration in basic education. Using a quantitative descriptive-correlational research design, the study assessed teacher-respondents' SDG knowledge, attitudes toward SDG integration, extent of classroom application, perceived implementation challenges, and relationships among the major variables. Data were gathered using a researcher-developed SDG Literacy Questionnaire and analyzed using frequencies, percentages, weighted means, t-tests, analyses of variance, and correlation analyses. Findings showed that teachers had a high level of SDG knowledge ($M = 3.76$) and very high positive attitudes toward SDG integration ($M = 4.31$). However, pedagogical integration was only moderate ($M = 3.41$), indicating a gap between awareness and classroom practice. The most serious barriers were limited SDG-related training, lack of localized instructional materials, curriculum congestion, limited time, and insufficient assessment tools. Significant differences in SDG literacy were found according to educational attainment, SDG-related training, and school location. Correlation results revealed significant positive relationships among SDG knowledge, attitudes, and pedagogical integration, with attitudes showing the strongest association with classroom practice. The study recommends a structured SDG Literacy and Pedagogical Integration Enhancement Program for public school teachers in Pangasinan.

Keywords: Sustainable Development Goals; SDG literacy; public school teachers; pedagogical integration; basic education

Introduction

The Sustainable Development Goals provide a global framework for addressing poverty, inequality, environmental degradation, quality education, peace, justice, and inclusive human development. Among the 17 SDGs, SDG 4 emphasizes inclusive and equitable quality education,

while Target 4.7 specifically highlights the importance of equipping learners with the knowledge, skills, values, and attitudes needed to promote sustainable development, global citizenship, human rights, gender equality, peace, cultural diversity, and environmental responsibility.

Education for Sustainable Development (ESD) positions schools as strategic sites for developing sustainability-oriented knowledge, dispositions, and competencies. In this regard, teachers are not merely transmitters of content but curriculum mediators who translate global sustainability goals into classroom instruction, assessment, contextualized learning activities, and school-community initiatives. Prior studies have shown that teacher education and structured sustainability training can improve teachers' understanding of sustainability concepts and strengthen their methodological strategies for classroom integration.

In basic education, integrating the SDGs requires interdisciplinary and contextualized teaching. Sustainability issues such as climate action, poverty reduction, gender equality, responsible consumption, biodiversity conservation, health, peace, and community resilience cut across learning areas and cannot be confined to a single subject. Studies on SDG integration in teacher education and language teaching show that sustainability themes can be embedded across disciplines through inquiry-based, reflective, participatory, and action-oriented learning activities.

In the Philippine context, the integration of sustainability, environmental awareness, disaster risk reduction, climate change education, peace education, values formation, and global citizenship is reflected in several curricular and policy directions. However, successful implementation depends largely on teachers' SDG literacy, willingness, pedagogical competence, and access to localized instructional support. Public school teachers in Pangasinan operate in diverse contexts, including coastal, agricultural, rural, urbanizing, and disaster-prone communities, making SDG literacy especially relevant to local teaching and learning realities. The working manuscript identifies the need to assess teachers' SDG knowledge, attitudes, and pedagogical integration as a basis for capacity-building programs, localized instructional resources, and school-based sustainability initiatives.

This study, therefore, examined SDG literacy among public school teachers in Pangasinan with respect to knowledge, attitudes, and pedagogical integration. Specifically, it described teacher profiles, assessed SDG knowledge and attitudes, determined the extent of pedagogical integration, identified implementation challenges, tested differences in SDG literacy according to profile variables, and examined relationships among SDG knowledge, attitudes, and pedagogical integration.

Methodology

Research Design

The study employed a quantitative descriptive-correlational research design. The descriptive component was used to profile public-school teachers and to describe their SDG knowledge, attitudes, pedagogical integration practices, and challenges. The correlational component was used to determine whether significant relationships existed among teachers' SDG knowledge, attitudes toward SDG integration, and pedagogical integration practices. The manuscript identifies SDG knowledge, attitudes, pedagogical practices, and challenges as the study's major variables.

Locale of the Study

The study was conducted in selected public elementary and secondary schools in Pangasinan, Philippines. Pangasinan was considered an appropriate study locale because its communities include coastal, agricultural, rural, urbanizing, and disaster-prone areas. These contexts provide relevant local entry points for SDG integration, particularly for poverty reduction, health and well-being, quality education, gender equality, clean water and sanitation, responsible consumption, climate action, life below water, life on land, and sustainable communities.

Respondents and Sampling

The respondents were public school teachers from selected elementary, junior high, and senior high schools in Pangasinan. The working manuscript used a sample of 384 teacher-respondents. Stratified random sampling was proposed to ensure representation across school levels, subject areas, and school locations. The respondent profile included age, sex, highest educational attainment, teaching position, length of teaching experience, grade level taught, learning area, school location, and SDG-related trainings attended.

Research Instrument

Data were gathered using a researcher-made SDG Literacy Questionnaire. The instrument measured five major areas: respondents' profile, SDG knowledge, attitudes toward SDG integration, pedagogical integration practices, and challenges encountered in integrating the SDGs. The questionnaire included indicators on familiarity with the 17 SDGs, understanding of SDG principles and targets, awareness of SDG 4 and Target 4.7, recognition of local SDG-related issues, perceived relevance of SDGs, willingness to integrate SDG concepts, and actual use of SDG concepts in lesson planning, instructional strategies, classroom activities, assessment, contextualization, learning resources, and school-community initiatives.

Data Gathering Procedure

The researcher secured permission from the appropriate school authorities before administering the instrument. Respondents were informed about the purpose of the study, the voluntary nature of participation, confidentiality of responses, and their right to withdraw. Questionnaires were administered either in printed form or through an online survey platform. Completed responses were checked, encoded, tabulated, and prepared for statistical treatment.

Data Analysis

Frequency and percentage were used to describe respondent profiles. The weighted mean and standard deviation were used to determine the levels of SDG knowledge, attitudes, pedagogical integration, and challenges. The t-test and analysis of variance were used to determine significant differences in SDG literacy according to selected profile variables. Pearson Product-Moment Correlation was used to determine relationships among SDG knowledge, attitudes, and pedagogical integration. The manuscript identifies these statistical tools as appropriate for analyzing the study variables.

Ethical Considerations

The study observed ethical standards in educational research. Respondents participated voluntarily and were assured of confidentiality and anonymity. No personally identifiable information was disclosed. Data were used solely for research purposes and were stored securely. The researcher also committed to honest reporting of findings and proper acknowledgment of sources.

Results

Profile of the Respondents

Most respondents were female teachers, representing 69.27% of the sample. The largest age group was 31–40 years old. In terms of educational attainment, most respondents had either a bachelor's degree or master's units/master's degree. Elementary teachers formed the largest school-level group. A notable finding was that 67.19% of the respondents had not attended SDG-related training or seminars, indicating a professional development gap in sustainability education.

Level of SDG Knowledge

Teachers obtained an overall SDG knowledge mean of 3.76, interpreted as high. The highest-rated indicator was understanding the role of education in achieving sustainable development ($M = 4.02$), while the lowest-rated indicator was understanding SDG principles and targets ($M = 3.52$). This suggests that teachers generally recognized the importance of education in sustainability but may still need a deeper orientation on specific SDG targets, indicators, and classroom applications.

Attitudes Toward SDG Integration

Teachers demonstrated very high positive attitudes toward SDG integration, with an overall mean of 4.31. The highest-rated indicator was perceived relevance of the SDGs to teaching and learning ($M = 4.42$), followed by willingness to integrate SDG concepts in lessons ($M = 4.36$), perceived responsibility as sustainability educators ($M = 4.31$), openness to interdisciplinary and values-based teaching ($M = 4.27$), and commitment to promoting learner participation in sustainability actions ($M = 4.21$).

Extent of Pedagogical Integration

The overall mean for pedagogical integration was 3.41, interpreted as moderate. Teachers were strongest in contextualization and localization of SDG concepts ($M = 3.73$), followed by inclusion of SDG-based classroom activities ($M = 3.51$). However, integration of SDGs in assessment practices received the lowest mean ($M = 3.18$), indicating that teachers may discuss SDG-related issues but may not consistently assess SDG-related competencies through rubrics, performance tasks, reflective outputs, or project-based assessments.

Challenges in SDG Integration

Teachers identified challenges in SDG integration as serious, with an overall mean of 4.11. The most serious challenges were limited SDG-related training and seminars ($M = 4.34$), lack of localized instructional materials ($M = 4.28$), curriculum congestion ($M = 4.17$), limited time for SDG-based activities ($M = 4.11$), lack of assessment tools ($M = 4.05$), limited school resources ($M = 3.96$), and insufficient monitoring and technical support ($M = 3.89$).

Differences in SDG Literacy by Profile Variables

Significant differences in SDG literacy were found by highest educational attainment, SDG-related training, and school location. No significant differences were found by sex, school level, or length of teaching experience. These results suggest that graduate education, sustainability-related professional development, and local teaching context influence teachers' SDG literacy.

Relationship Among SDG Knowledge, Attitudes, and Pedagogical Integration

Correlation results showed significant positive relationships among SDG knowledge, attitudes, and pedagogical integration. SDG knowledge and attitudes showed a moderate positive significant relationship ($r = .462, p = .000$). SDG knowledge and pedagogical integration showed a low positive significant relationship ($r = .386, p = .000$). Attitudes and pedagogical integration showed the strongest association ($r = .571, p = .000$), indicating that teachers who value the SDGs and perceive them as relevant are more likely to integrate sustainability concepts in classroom and school-based practices.

Discussion

The findings reveal a meaningful pattern: teachers in Pangasinan demonstrate high SDG knowledge and very positive attitudes, but their pedagogical integration remains moderate. This suggests an implementation gap between conceptual awareness and classroom practice. Teachers generally recognize the value of the SDGs, but they may need stronger pedagogical support in translating SDG concepts into lesson planning, instructional strategies, assessment practices, and school-community projects.

The high level of SDG knowledge is encouraging, as it indicates that teachers are familiar with sustainability concepts. However, the lower rating in understanding of SDG principles and targets suggests that teacher development programs should move beyond general awareness and provide more technical orientation to SDG targets, indicators, interdisciplinary linkages, and curriculum mapping. Studies on teacher preparation for sustainability show that structured training can improve teachers' knowledge of the SDGs and their methodological strategies for integration.

The very high attitude score is a major strength. Teachers perceived the SDGs as relevant to teaching and learning and expressed willingness to integrate them. This finding aligns with the significant correlation between attitudes and pedagogical integration. The results suggest that teacher beliefs, motivation, and perceived responsibility as sustainability educators are important drivers of classroom implementation. This supports the Theory of Planned Behavior, which posits that behavior is influenced by attitude, perceived behavioral control, and perceived behavioral expectancy (Ajzen, 1991).

The moderate level of pedagogical integration indicates that teachers may be able to discuss sustainability themes but may not yet systematically embed them in instructional design and assessment. The relatively strong rating for contextualization and localization is notable because Pangasinan's coastal, agricultural, rural, and urbanizing contexts provide authentic opportunities for SDG-related teaching. Teachers can connect lessons to marine conservation, food security, disaster risk reduction, responsible consumption, health, livelihood, and climate action. This supports constructivist and transformative approaches to ESD, where learning becomes meaningful when connected to lived experience and local realities.

The weakest area was assessment integration. This indicates the need to develop SDG-based rubrics, performance tasks, reflective journals, project-based learning outputs, community mapping activities, and portfolio assessments. Without assessment alignment, SDG integration may remain incidental rather than outcomes-based. Interdisciplinary approaches to sustainability education have been found to support knowledge, attitudes, and behavior when learning tasks are intentionally designed and supported.

The identified challenges explain why pedagogical integration remains moderate. Limited training, lack of localized instructional materials, curriculum congestion, lack of time, insufficient assessment tools, and limited technical support restrict classroom implementation. These barriers suggest that SDG integration cannot depend solely on teacher initiative. It requires system-level support through teacher training, curriculum guides, instructional materials, monitoring tools, and school-based sustainability programs.

The significant differences according to educational attainment, SDG-related training, and school location further indicate that professional and contextual factors matter. Teachers who have graduate education or SDG-related training may have greater exposure to sustainability concepts and research-informed teaching strategies. Similarly, the location of schools may expose teachers to different sustainability issues, shaping their awareness and instructional priorities.

Overall, the findings support the development of an SDG Literacy and Pedagogical Integration Enhancement Program for public school teachers in Pangasinan. Such a program should include SDG literacy modules, interdisciplinary lesson planning workshops, localized SDG lesson exemplars, assessment tool development, school-community sustainability projects, and peer mentoring.

Conclusion

This study concludes that public school teachers in Pangasinan possess high SDG knowledge and very positive attitudes toward SDG integration in basic education. However, their actual pedagogical integration is only moderate, revealing a gap between awareness and classroom application. Teachers are relatively strong at contextualizing SDG concepts through local realities, but they require further support to integrate the SDGs into assessment practices and systematic instructional planning.

Significant differences in SDG literacy by educational attainment, SDG-related training, and school location indicate that professional development and context influence teachers' sustainability literacy. Moreover, significant positive relationships among SDG knowledge, attitudes, and pedagogical integration confirm that teachers' understanding and dispositions are associated with classroom practice. Attitudes showed the strongest relationship with pedagogical integration, suggesting that teachers who perceive the SDGs as meaningful and relevant are more likely to integrate them into instruction.

The study recommends implementing a structured SDG Literacy and Pedagogical Integration Enhancement Program. This program should provide teachers with capacity-building workshops, localized instructional materials, interdisciplinary lesson exemplars, assessment tools, peer mentoring, and guides for school-community sustainability projects. Strengthening teachers' SDG literacy may help basic education learners develop critical thinking, environmental responsibility, civic engagement, global awareness, and action-oriented sustainability values.

AI Declaration Statement:

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data; all authors are credited for their academic contributions.

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