Volume 6 Nomor 2 (2025) Pages 234-247
Edubase : Journal of Basic Education
Email Journal : edubase.bbc@gmail.com
Web Journal: https://jurnal.uibbc.ac.id/index.php/edubase/index

An Innovative Approach to Implementing a Green Economy Through Javanese Local Wisdom in Elementary School Learning

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Received: 2025-03-25; **Revised**: 2025-07-19; **Accepted**: 2025-08-30

Abstract

Objective: This study examines the implementation of Green Economy concepts through Cultural-Based Learning in Indonesian elementary schools, focusing specifically on Javanese cultural contexts. **Novelty**: Addressing a critical gap in sustainability education, the study demonstrates how integrating local traditions can effectively contextualize global sustainability goals in the classroom. **Methods**: The study uses a mixed-methods design, surveying 200 teachers across four provinces in Java and conducting in-depth interviews with 30 participants. **Results**: Quantitative findings indicate strong teacher understanding of Green Economy principles (M=4.12/5), but relatively lower application levels (M=3.89), with significant regional disparities (F=3.864, p=0.010). Qualitative analysis reveals three main themes: (1) teacher commitment to environmental stewardship, (2) systemic barriers such as curriculum overload and limited facilities, and (3) the role of Javanese cultural practices—such as Sedekah Bumi—in enhancing student engagement. **Conclusions**: Practical implications include the development of culturally responsive curricula and targeted teacher training programs. The study is limited to the Javanese region, and further research is needed to explore its applicability in other cultural settings.

Keywords: Green Economy Education, Javanese Cultural Traditions, Elementary Schools.

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INTRODUCTION

Primary education plays a strategic role in shaping students' mindsets, attitudes, and behaviors towards both the environment and their cultural heritage (Zulela et al., 2022). In an era marked by global challenges—ranging from climate change and environmental degradation to the erosion of local identity due to globalization—the urgency for implementing sustainability-based education has increased (Naheed & Shooshtarian, 2022). One integrative framework that offers promise in this regard is the Green Economy, which advocates for sustainable economic development by minimizing environmental harm while promoting social welfare (Adamowicz, 2022). Concurrently, Cultural-Based Learning has been shown to reinforce students' local identity and increase the relevance of classroom content by connecting it to their lived experiences (Windiyani et al., 2025).

Java, as the most populous and culturally rich island in Indonesia, presents a unique context for this study (Miksic, 2023). The island is home to longstanding environmental traditions, such as Sedekah Bumi (earth gratitude) (Hastuti et al., 2021), Ruwatan (ritual cleansing) (Atrinawati et al., 2021), Nyadran (ancestor homage) (Sartini et al., 2024), Wiwitan (pre-planting blessing) (Verrysaputro, 2025), Unan-Unan (disaster prevention) (Putri et al., 2022), Merti Desa (village cleansing) (Anindyarini et al., 2024), and Labuhan (sea offering) (Bagas et al., 2024), which reflect a deep-rooted cultural commitment to nature and sustainability. These practices offer an organic foundation for implementing Green Economy principles in educational settings. Despite this, little empirical research has explored how such traditions can be meaningfully integrated into formal learning, particularly at the elementary school level (Johnson & Majewska, 2022).

Existing research has established that integrating environmental themes into primary curricula fosters ecological awareness and pro-environmental behavior (Otieno et al., 2020; Tilbury, 2011). Culture-based pedagogy, in turn, has been found to boost student engagement and pride in local identity (Darong, 2022; Iasha et al., 2022). However, most Green Economy studies have concentrated on secondary or higher education settings, often overlooking the foundational role of primary education (Ngare et al., 2022; Sun et al., 2024; Wu & Zhang, 2022).

Furthermore, comparative studies from regions outside Java reveal varying patterns in the implementation of sustainability-oriented education. For instance, research in Bali highlights the strong integration of environmental education with religious rituals, such as Tri Hita Karana (the three causes of well-being), which emphasizes harmony with nature, humans, and God (Lasmawan & Sanjaya, 2025). In contrast, studies in Kalimantan and Papua emphasize ecological knowledge rooted in indigenous traditions and forest-based livelihoods, yet these often lack formal curricular support (Fatem et al., 2023; Nugroho et al., 2023). Internationally, countries like Finland and Japan have successfully incorporated sustainability values through student-centered pedagogies and nature-based learning activities (Hu & Mou, 2025; Lee, 2023). Compared to these contexts, the integration of the Green Economy and Cultural-Based Learning in Java is unique due to its blend of institutional education and rich local wisdom embedded in daily life practices. However, such comparative insights are rarely examined in depth, especially concerning how local cultural assets can be systematically leveraged to support sustainability education at the primary level—highlighting a significant research gap this study seeks to address.

Another identified gap lies in the limited exploration of how these educational concepts are enacted in actual school practice. Prior studies frequently address theoretical models or macro-level policy frameworks (Timm & Barth, 2021), leaving a void in understanding how primary school teachers interpret, adapt, and apply Green Economy and Cultural-Based

Learning in their everyday teaching. Aspects such as teacher preparedness, institutional support, curriculum flexibility, and local cultural adaptation remain under-examined (Rahmawati et al., 2023). Moreover, while student perspectives are essential for measuring learning effectiveness, this study narrows its scope to teachers' perspectives to focus on implementation-level dynamics—acknowledging that future research should include students to complete the educational narrative.

Based on this context, the present study aims to investigate how elementary school teachers in Java implement Green Economy and Cultural-Based Learning in their classrooms. The study seeks to uncover not only the instructional strategies employed but also the challenges and supporting factors encountered in the process. Ultimately, it aspires to contribute to the development of sustainability-oriented and culturally responsive primary education in Indonesia.

METHODS

Research Design

This study employed a mixed-methods approach, combining quantitative and qualitative data collection techniques to provide a comprehensive understanding of implementing Green Economy concepts through Cultural-Based Learning Models in elementary schools. A convergent parallel design was adopted, wherein quantitative (survey) and qualitative (interview) data were collected simultaneously, analyzed separately, and then merged during interpretation to obtain a holistic view (Creswell & Creswell, 2017; Fraenkel et al., 1993). This design enabled the researchers to validate and complement the findings through different data sources.

Participants

Participants in this study consisted of 200 elementary school teachers from four provinces in Java: West Java, Banten, Central Java, and East Java. Participants were selected using purposive sampling based on four criteria: (1) actively teaching in an accredited elementary school, (2) having at least two years of teaching experience, (3) previous exposure to environmental or sustainability-related programs (e.g., local green school initiatives, teacher workshops), and (4) willingness to participate voluntarily. Java was chosen as the research location because of its accessibility, diversity of cultural backgrounds, and density of educational institutions, making it a strategic representation of the Indonesian elementary education landscape. While this provides rich contextual insights, it also presents limitations in terms of generalization outside the island, particularly to schools outside the island with different infrastructure and cultural ecosystems. The demographic characteristics of the participants are summarized in Table 1.

Table 1. Demographic Characteristics of Participants

Demographic Category		n	%
Gender	Male	78	39%
	Female	122	61%
Age	21–30 years	48	24%
	31–40 years	82	41%
	41–50 years	53	26.5%

	> 50 years	17	8.5%
Teaching Experience	2–5 years	38	19%
	6–10 years	65	32.5%
	11–15 years	59	29.5%
	>15 years	38	19%
Educational Qualification	Bachelor's degree (S1)	156	78%
	Master's degree (S2)	44	22%

Data Collection Instruments

The data in this study were collected through two main instruments, namely a questionnaire and a semi-structured interview guide. The questionnaire was designed to explore teachers' perceptions, knowledge, and experiences related to the implementation of the Green Economy concept and culture-based learning models in elementary school education. This instrument consists of 30 statements divided into three main domains: (1) understanding the Green Economy concept, (2) application of green economy principles in classroom learning practices, and (3) integration of local cultural values in the learning process. A five-point Likert scale was used to measure the level of respondent agreement with each statement, ranging from 1 (strongly disagree) to 5 (strongly agree), in order to provide space for a more vocal and measurable variation in responses.

The development of the questionnaire items was carried out through a literature review, especially literature on sustainable education and culture-based learning. To ensure content validity, this instrument has been reviewed by three experts in the fields of education for sustainable development and culturally responsive pedagogy. Revisions were made based on expert input, especially to ensure that each statement item is relevant to the context of elementary education in Indonesia. Next, a pilot test was conducted on 30 teachers outside the main research sample to test the clarity and consistency of the items. The pilot test results showed that the questionnaire had high internal reliability, with a Cronbach's Alpha value of 0.87, indicating that this instrument is reliable for use in large-scale data collection.

In addition to the questionnaire, semi-structured interviews were conducted to gain a deeper understanding of how teachers implement the Green Economy concept and local cultural values in learning. Interviews were conducted with 30 teachers who were purposively selected from various cultural and geographical backgrounds. The interview guide included open-ended questions regarding teachers' perceptions of the green economy concept, their experiences in integrating cultural values into teaching, challenges faced, and strategies they used. The interview process was conducted flexibly, either in person or through an online platform (Zoom or Google Meet), depending on the availability and location of the participants. All interviews were recorded with the consent of the participants and transcribed verbatim for qualitative analysis purposes. The use of these two instruments allowed for data triangulation to increase the validity of the findings and strengthen the interpretation of the research results.

Data Analysis Techniques

The collected data were analyzed using a combination of quantitative and qualitative techniques. Quantitative data from the questionnaires were subjected to descriptive statistical analysis, including calculating means, standard deviations, and frequency distributions to summarize teachers' perceptions and practices. To identify potential differences between

regions (West Java, Banten, Central Java, and East Java), analysis of variance (ANOVA) tests was conducted.

A thematic analysis approach was applied to the qualitative data following the six-phase procedure outlined by Braun and Clarke (2006). This involved familiarising with the interview transcripts, generating initial codes, searching for patterns and emergent themes, reviewing and refining them, and finally defining and naming them. This iterative process identified key insights into the implementation challenges and successful strategies. Triangulation was employed by cross-referencing the survey results with the qualitative data from interviews to ensure the credibility and trustworthiness of the findings.

RESULT AND DISCUSSION

Quantitative Findings

The quantitative analysis revealed important insights into teachers' understanding, application, and integration of Green Economy concepts and Cultural-Based Learning Models. Table 2 presents the descriptive statistics of teachers' responses across the three main domains.

Table 2. Mean and Standard Deviation of Teachers' Perceptions

Domain	Mean	SD
Understanding of Green Economy	4.12	0.53
Application of Green Economy in Classroom	3.89	0.61
Integration of Cultural Values in Learning	4.25	0.47

Table 2 showed that teachers generally had a strong understanding of the Green Economy, with a mean score of 4.12 (SD = 0.53). This indicates widespread awareness of sustainable development principles and eco-friendly educational practices. However, the application of these concepts in classroom settings was slightly lower (M = 3.89, SD = 0.61), suggesting that while conceptual knowledge was high, practical implementation faced barriers. Interestingly, integrating cultural values received the highest mean score (M = 4.25, SD = 0.47), reflecting a strong tradition of incorporating local wisdom into pedagogical practices.

Table 3. Mean Scores by Province

Province	Understanding of Green Economy	Application of Green Economy	Integration of Cultural Values
West Java	4.10	3.92	4.20
Banten	4.00	3.75	4.15
Central Java	4.25	4.10	4.35
East Java	4.12	3.85	4.30

Central Java consistently recorded the highest scores across all domains, especially in the application of Green Economy practices. This trend may be influenced by the region's proactive environmental education programs and longstanding integration of ecological values into school activities. Central Java's local government has introduced supportive policies, including funding for school-based environmental initiatives and training for teachers, which likely contributed to these higher scores.

In contrast, Banten had the lowest scores, particularly in the application domain (M = 3.75). Interviews and field notes revealed that this region faces several structural challenges,

such as limited school infrastructure, less frequent environmental teacher training, and lower prioritization of sustainability in local education policies. These constraints may hinder effective classroom implementation, even when teachers possess adequate understanding.

To statistically examine whether these inter-regional differences were significant, a one-way ANOVA was conducted on the application domain. The results are presented in Table 4.

Table 4. ANOVA Results for Application of Green Economy Practices by Province

Source	Sum of Squares	df	Mean Square	F	p-value
Between Groups	3.276	3	1.092	3.864	0.010
Within Groups	55.980	196	0.286		
Total	59.256	199			

The ANOVA showed a statistically significant difference in the application of Green Economy practices across provinces ($F(3, 196) = 3.864$, $p = 0.010$). This reinforces the hypothesis that regional characteristics influence implementation. Factors such as local government support, availability of teaching resources, administrative encouragement, and integration of environmental topics in regional curricula likely contribute to these differences. For instance, the higher scores in Central Java may reflect better institutional alignment and greater community engagement with sustainability, while lower scores in Banten point to infrastructural and policy-related gaps.

Qualitative Findings

Thematic analysis of interview data from 30 participants revealed three major overarching themes: (1) Teacher Awareness and Commitment, (2) Challenges in Implementation, and (3) Cultural Synergy in Green Practices. The coding process involved initial open coding, axial coding to identify patterns, and selective coding to finalize themes. Figure 1 illustrates the thematic map generated.

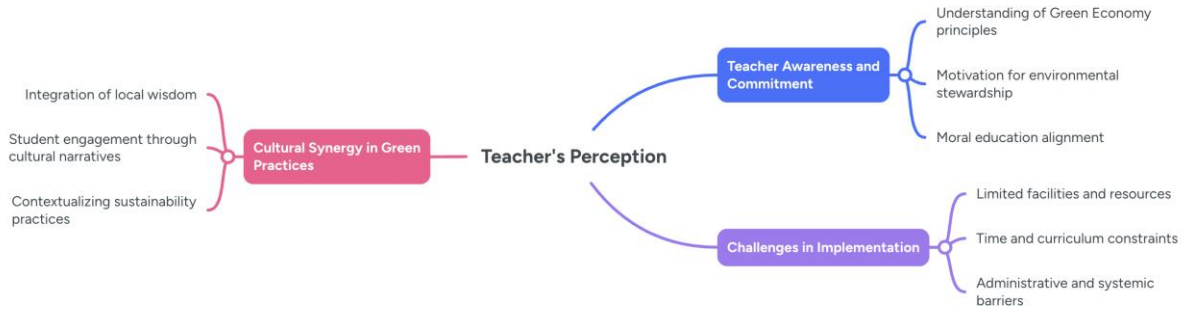

Figure 1. Thematic Map of Green Economy Implementation in Cultural-Based Learning

Teacher Awareness and Commitment

In this study, nearly all participants demonstrated a high level of awareness regarding the principles of the Green Economy, reflecting a strong commitment to environmental responsibility within the educational framework. Teachers recognized that fostering environmental stewardship from an early age was crucial for cultivating a sustainable future and promoting broader educational goals, including moral and civic development. The Green

Economy concepts (such as waste reduction, resource conservation, and promoting sustainable consumption habits) were seen by teachers as complementary to the values of responsibility, care, and respect integral to elementary school character education.

Teachers explained that integrating these Green Economy principles into their lessons was not an additional burden but a natural extension of the ethical principles they already emphasized in their teaching. For instance, many believed that instilling a sense of environmental responsibility in students aligned closely with their schools' core moral education goals. One teacher from West Java shared the following perspective:

> "*Teaching about protecting the environment is part of building students' character. Green Economy concepts fit very well into what we already emphasize: responsibility, care, and respect."*

Furthermore, the findings revealed that teachers possessed a strong intrinsic motivation to promote environmental stewardship, even when it was not explicitly required or mandated by the curriculum. Despite the absence of formal directives, they felt a moral obligation to equip students with the knowledge and values necessary to become responsible environmental citizens. This motivation stemmed from recognising that teaching sustainable practices could shape students' habits and worldviews, fostering long-term environmental consciousness.

Challenges in Implementation

While teachers expressed a deep commitment to implementing Green Economy principles, several practical challenges that hindered the consistent application of these concepts in classroom settings were identified. One of the most significant barriers was the limited school facilities. Many teachers reported that their schools lacked the physical infrastructure to support environmental practices such as recycling, waste segregation, or composting. Translating environmental awareness into practical action became challenging without adequate facilities like recycling bins or green spaces. As one teacher from Banten noted:

> "*We understand the importance, but we lack real facilities. There's no composting area and no proper recycling system. It becomes just theory without practice.*"

Moreover, curriculum overload was another critical issue highlighted by many teachers. Integrating Green Economy topics into an already full and rigid curriculum created a sense of time pressure. Teachers often found it difficult to balance sustainability topics with other subjects, especially when standardised testing requirements left little room for additional content. This struggle to align Green Economy principles with prescribed educational frameworks made it difficult for teachers to devote adequate time to these topics.

Another recurring challenge was the lack of administrative support. While some teachers received encouragement from school leaders, only a few schools had formalized programs or specific incentives designed to support environmental education. The absence of clear institutional policies or dedicated green initiatives meant that much of the responsibility for

implementing Green Economy practices rested on the shoulders of individual teachers. The challenge was compounded by the reality that these initiatives often depended on teachers' enthusiasm rather than being embedded within the school's broader educational objectives.

Cultural Synergy in Green Practices

A striking and positive finding from the interviews was the role of cultural-based learning as a significant enabler of Green Economy education. Teachers in various regions of Indonesia, particularly in areas with strong local traditions, creatively integrate cultural values and practices that emphasize harmony with nature into their environmental education efforts. This approach made the Green Economy concepts more relatable and meaningful to students by grounding them in familiar cultural contexts.

Teachers often drew upon local wisdom from indigenous practices, folklore, and ceremonies that promoted environmental care. Teachers usually used storytelling traditions to convey the importance of respecting natural resources. For example, in West Java and Central Java, stories about the sanctity of forests and rivers, derived from local myths and traditions, were employed as teaching tools. These cultural narratives fostered respect for the environment and helped students see themselves as part of a larger ecological and cultural web.

In addition to storytelling, teachers also utilized community farming projects based on traditional sustainable methods. These educational and practical activities allowed students to engage directly with sustainability concepts, such as organic farming and water conservation. Furthermore, cultural ceremonies like Sedekah Bumi (Earth Offering) and Nyadran (ritual honouring ancestors and the environment) were integrated into lessons, providing students with hands-on opportunities to connect cultural practices with environmental stewardship.

A teacher from Central Java shared the following:

> "*By embedding the lessons in local traditions like 'Sedekah Bumi,' students naturally appreciate the connection between culture and environmental care.*"

This fusion of cultural traditions with Green Economy practices was viewed as an effective way to engage students, making environmental issues more accessible and meaningful to them. Teachers noted that cultural-based learning enhanced students' understanding of environmental concepts and helped foster a sense of pride in their cultural heritage while reinforcing the importance of preserving the natural environment.

DISCUSSION

The findings of this study on implementing the Green Economy concept and the Culture-Based Learning Model in elementary schools reveal several insights that contribute to the existing knowledge on sustainability education. The study identifies several key themes: Teachers' Awareness and Commitment, Challenges in Implementation, and Cultural Synergy in Green Practices. These findings are further interpreted through the lens of global environmental education frameworks, particularly UNESCO's Education for Sustainable

Development (ESD), which emphasizes integration of sustainability across cognitive, socio-emotional, and behavioral dimensions.

Teacher Awareness and Commitment

The results of this study show that elementary school teachers possess a high level of awareness and commitment to integrating Green Economy principles into their teaching practices. The findings align with existing research emphasizing the importance of environmental education in fostering sustainable development from an early age. Studies by Goodale et al. (2025) and Chavula et al. (2024) stress that environmental education is essential for cultivating a sense of responsibility and environmental stewardship, which are key goals of Green Economy principles. Teachers in the current study expressed the view that Green Economy values, such as resource conservation and waste reduction, naturally complement the moral and civic education already embedded in their curricula. This finding supports the argument by Jordan (2023) and Coelho & Menezes (2021), who posit that sustainability education must be integrated into schools' broader ethical and civic mission rather than being treated as an isolated subject.

Furthermore, even without formal curriculum mandates, the intrinsic motivation observed among teachers is consistent with other studies on teacher motivation in sustainability education (Bukhari et al., 2023; Yalçınkaya et al., 2021). Teachers' willingness to promote environmental stewardship reflects a personal commitment to creating a sustainable future, which is often driven by a deep-rooted belief in the importance of ecological responsibility (Huang et al., 2024). This aligns with the "teacher agency" construct, as defined by Parry & Metzger (2023), where teachers take initiative in integrating sustainability practices, even when systemic or institutional support is lacking. Moreover, such teacher-led initiatives resonate with the "transformative action" outlined in the UNESCO ESD framework, where educators act as change agents in driving sustainability transitions.

Challenges in Implementation

Despite the teachers' awareness and commitment, the study identified several barriers to implementing Green Economy practices effectively in elementary schools. The key challenges, including limited facilities, curriculum overload, and lack of administrative support, echo findings from previous research on the obstacles to environmental education in schools. According to Alam (2023), inadequate resources and infrastructure significantly hinder the effective delivery of environmental education. This study's finding that schools often lack recycling bins, green spaces, or composting areas underscores the importance of providing adequate physical and institutional support for environmental initiatives. Additionally, the curriculum overload cited by teachers resonates with research by Dunlop et al. (2022) and Berrone et al. (2023), who argue that the inclusion of sustainability topics often competes with other pressing educational priorities, making it challenging to give sustainability the attention it deserves.

The lack of administrative support also mirrors the findings of Laufer et al. (2025), who emphasize the crucial role of school leadership in driving educational reforms. When administrative support is minimal, sustainability initiatives tend to be fragmented and heavily reliant on individual teacher efforts, as observed in this study. This highlights the need for systemic change at the institutional level, where school leadership is pivotal in fostering a supportive environment for sustainability education (Weiss et al., 2021).

While anecdotal evidence suggested student enthusiasm toward green practices, this study did not systematically measure changes in student behavior such as recycling habits,

energy conservation, or waste reduction. Thus, future research should consider using behavioral indicators or observational tools to assess the actual implementation impact at the student level, as recommended by ESD evaluation guidelines (UNESCO, 2020).

Cultural Synergy in Green Practices

One of the most compelling findings of this study is the significant role of cultural-based learning in facilitating the implementation of Green Economy practices. Teachers in this study utilized local traditions, rituals, and cultural practices to enhance the relevance and effectiveness of environmental education. This approach aligns with the theory of culturally responsive pedagogy (Ladson-Billings, 1995), emphasising the importance of integrating students' cultural backgrounds into the learning process. By drawing upon local cultural traditions such as "Sedekah Bumi" (Earth Offering) and storytelling practices from Sundanese and Javanese cultures, teachers were able to make Green Economy concepts more meaningful and engaging for their students. This cultural synergy improved students' understanding of sustainability and fostered a deeper emotional connection to environmental care. This practice also reflects the ESD principle of utilizing indigenous and local knowledge as key sources for sustainability learning.

Integrating cultural practices into environmental education is also supported by research on the relationship between cultural heritage and environmental awareness. According to Collado-Ruano & Segovia Sarmiento (2022), indigenous knowledge systems often emphasize sustainable resource management and environmental respect, making them an ideal context for teaching Green Economy principles. The use of local wisdom, as found in this study, provides a valuable framework for implementing sustainability education in a culturally appropriate and contextually relevant way.

However, it is essential to acknowledge potential challenges. Cultural traditions such as Sedekah Bumi may not be relevant or appropriate in all educational settings, especially in multicultural or urban schools with students from diverse backgrounds (Hastuti et al., 2021). There is also the risk of romanticizing local traditions without addressing how these may evolve, conflict, or be contested in modern school environments. As such, educators must critically assess the adaptability and inclusiveness of culture-based learning approaches, particularly when applied beyond their original cultural contexts.

Furthermore, the success of cultural-based learning in this study aligns with findings by Croizet & Millet (2024), who argue that students are more likely to internalize environmental concepts when framed within the cultural contexts they are familiar with. The cultural integration observed in this study also supports the argument by Windiyani et al. (2025) that integrating local and cultural knowledge into science and environmental education enhances students' learning outcomes and fosters a more holistic understanding of environmental issues.

Limitations of the current study include the lack of data on how cultural-based approaches function in diverse school environments and the absence of quantitative behavioral data on students' ecological practices. These gaps suggest the need for future studies using mixed methods and comparative approaches across different cultural contexts.

CONCLUSION

In conclusion, this study demonstrates that implementing Green Economy principles in elementary education through a cultural-based learning model offers a contextually relevant and effective strategy for promoting sustainability. Teachers in Javanese elementary schools showed a strong understanding and commitment to Green Economy values, leveraging cultural

practices—such as Sedekah Bumi, traditional farming, and folklore—to make environmental education more engaging and locally grounded. This cultural integration not only enhanced students' conceptual grasp of sustainability but also fostered a deeper emotional connection with their heritage and environment.

Nonetheless, the study identified key limitations in practice. These include infrastructural shortcomings, such as the absence of green school spaces and waste management facilities, as well as systemic barriers like curriculum overload and minimal institutional support. Importantly, this research was geographically limited to Java and focused solely on teachers' perspectives; therefore, the findings may not be generalizable to other regions or stakeholder groups, such as students or policymakers.

To address these challenges, we recommend the development of culturally responsive teacher training programs that integrate local traditions with environmental education. Additionally, partnerships with environmental NGOs can provide both resources and technical guidance to schools lacking infrastructure. Local education authorities should also consider allocating dedicated funding for Green Economy initiatives, including eco-literacy materials and school greening projects. Future research should incorporate student voices and explore the applicability of this model in other cultural contexts across Indonesia.

ACKNOWLEDGMENTS

The author would like to thank Universitas Pelita Bangsa for supporting this research through the Universitas Pelita Bangsa Internal Research Grant with contract number 2151/7/KP/UPB/2024 dated December 30, 2024. This funding support has enabled the study to be carried out optimally, from developing teaching materials to data analysis.

REFERENCE

Adamowicz, M. (2022). Green Deal, Green Growth and Green Economy as a Means of Support for Attaining the Sustainable Development Goals. *Sustainability*, *14*(10). https://doi.org/10.3390/su14105901

Alam, M. (2023). Environmental education and non-governmental organizations. In *The Palgrave Encyclopedia of Urban and Regional Futures* (pp. 495–502). Springer.

Anindyarini, A., Sumarwati, S., Suryanto, E., & Slamet, S. (2024). Symbolic Meaning of Local Wisdom in the Slope of Mount Lawu: An Etnographic Study on Dukutan Village Clean-Up Ceremony. *Humaniora*, *15*(2).

Atrinawati, A., Hadiyanto, H., & Sundari, W. (2021). *The Sacred Meanings of Yearly "Dreadlock Haircut Ritual" As A Blessing Expectation for Dieng Plateau Society*. *317*, 04020.

Bagas, A., Fadirubun, F. F., Jihan, A., Illiyin, N., Tamam, R., & Puja, K. (2024). *Analysis of Local Wisdom Traces of Parangkusumo: Waves, Legends, and Socio-Cultural Dynamics of Coastal Community*. 394–400.

Berrone, P., Rousseau, H. E., Ricart, J. E., Brito, E., & Giuliodori, A. (2023). How can research contribute to the implementation of sustainable development goals? An interpretive review of SDG literature in management. *International Journal of Management Reviews*, *25*(2), 318–339.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chavula, Y., Abdi, E., Uwimbabazi, A., Habowa, C., Mensah, G., Amanzi, L., Lungu, G., & Kayusi, F. (2024). *Bridging Environmental Education and Sustainable Development: An Integrated Approach for a Greener Future*.

Coelho, M., & Menezes, I. (2021). University social responsibility, service learning, and students' personal, professional, and civic education. *Frontiers in Psychology*, *12*, 617300.

Collado-Ruano, J., & Segovia Sarmiento, J. (2022). Ecological economics foundations to improve environmental education practices: Designing regenerative cultures. *World Futures*, *78*(7), 456–483.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Croizet, J., & Millet, M. (2024). How preschool education perpetuates social inequality: An ethnographic study of the practical conditions of symbolic violence. *Journal of Social Issues*, *80*(4), 1345–1378.

Darong, H. C. (2022). Local-Culture-Based Materials in Online Cooperative Learning: Improving Reading Achievement in Indonesian Context. *Journal of Innovation in Educational and Cultural Research; Vol 3, No 3 (2022)*. https://doi.org/10.46843/jiecr.v3i3.113

Dunlop, L., Rushton, E. A., Atkinson, L., Ayre, J., Bullivant, A., Essex, J., Price, L., Smith, A., Summer, M., & Stubbs, J. E. (2022). Teacher and youth priorities for education for environmental sustainability: A co-created manifesto. *British Educational Research Journal*, *48*(5), 952–973.

Fatem, S. M., Runtuboi, Y. Y., Fisher, M. R., Sufi, Y., Maryudi, A., & Sirimorok, N. (2023). Conservation policy, Indigeneity, and changing traditional hunting practices in West Papua. *Forest and Society*, *7*(2), 359–379.

Fraenkel, J., Wallen, N., & Hyun, H. (1993). *How to Design and Evaluate Research in Education 10th ed.* McGraw-Hill Education.

Goodale, A. Y., Gilmore, M. P., & Griffiths, B. M. (2025). 21st-century stewardship: Infusing environmental stewardship education with global citizenship. *Environmental Education Research*, *31*(2), 364–389.

Hastuti, S., St Y, S., & Rakhmawati, A. (2021). *Ecological politeness on sedekah bumi ceremony in Merapi mountainside*. 7–15.

Hu, R., & Mou, S. (2025). Outdoor Education for Sustainable Development: A Systematic Literature Review. *Sustainability*, *17*(8), 3338.

Huang, R. X., Pagano, A., & Marengo, A. (2024). Values-Based Education for Sustainable Development (VbESD): Introducing a Pedagogical Framework for Education for Sustainable Development (ESD) Using a Values-Based Education (VbE) Approach. *Sustainability*, *16*(9), 3562.

Iasha, V., Japar, M., Maksum, A., Yanty Siregar, Y. E., Setiawan, B., & Andayani, A. (2022). Increasing students' culture literacy using virtual reality field trip model: Need analysis. *Cypriot Journal of Educational Sciences*, *17*(9), 3263–3276. Scopus. https://doi.org/10.18844/cjes.v17i9.8002

Johnson, M., & Majewska, D. (2022). Formal, Non-Formal, and Informal Learning: What Are They, and How Can We Research Them? Research Report. *Cambridge University Press & Assessment*.

Jordan, K. E. (2023). The intersection of environmental and sustainability education, and character education: An instrumental case study. *British Educational Research Journal*, *49*(2), 288–313.

Ladson-Billings, G. (1995). Toward a Theory of Culturally Relevant Pedagogy. *American Educational Research Journal*, *32*(3), 465–491. https://doi.org/10.3102/00028312032003465

Lasmawan, I. W., & Sanjaya, D. B. (2025). Implementation of Tri Hita Karana-Based Education in Protecting the Environment in Schools. *Dinamika Jurnal Ilmiah Pendidikan Dasar*, *17*(1), 1–13.

Laufer, M., Deacon, B., Mende, M. A., & Schäfer, L. O. (2025). Leading with trust: How university leaders can foster innovation with educational technology through organizational trust. *Innovative Higher Education*, *50*(1), 303–327.

Lee, A. (2023). The importance of cultivating awareness of environmental matters in science classrooms: A cross-regional study. *Australian Journal of Environmental Education*, *39*(4), 467–491.

Miksic, J. N. (2023). The classical cultures of Indonesia. In *Southeast Asia* (pp. 234–256). Routledge.

Naheed, S., & Shooshtarian, S. (2022). The role of cultural heritage in promoting urban sustainability: A brief review. *Land*, *11*(9), 1508.

Ngare, I. O., Otieno, D. B., Ogutu, E. A., Omwami, D. O., Marang'a, A. A., Otieno, E. O., Gikonyo, S. W., & Opiyo, L. O. (2022). Inclusion of Green Economy and Sustainability Programs in Higher Education Institutions: Examining the Case of Kenyatta University, Kenya. *Educational Research and Reviews*, *17*(6), 168–175.

Nugroho, H. Y. S. H., Sallata, M. K., Allo, M. K., Wahyuningrum, N., Supangat, A. B., Setiawan, O., Njurumana, G. N., Isnan, W., Auliyani, D., & Ansari, F. (2023). Incorporating traditional knowledge into science-based sociotechnical measures in upper watershed management: Theoretical framework, existing practices and the way forward. *Sustainability*, *15*(4), 3502.

Otieno, D., Wandabi, D., & Dixon, L. (2020). Eco-schools Kenya: Practising education for green economy and sustainability. *Green Schools Globally: Stories of Impact on Education for Sustainable Development*, 245–267.

Parry, S., & Metzger, E. (2023). Barriers to learning for sustainability: A teacher perspective. *Sustainable Earth Reviews*, *6*(1), 2.

Putri, F. K., Noven, H. J., Nurcahyati, M., AN, I., Septiasari, A., Batoro, J., & Setyawan, A. D. (2022). Local wisdom of the Tengger Tribe, East Java, Indonesia in environmental conservation. *Asian Journal of Ethnobiology*, *5*(1).

Rahmawati, Y., Mardiah, A., Taylor, E., Taylor, P. C., & Ridwan, A. (2023). Chemistry learning through culturally responsive transformative teaching (CRTT): Educating Indonesian high school students for cultural sustainability. *Sustainability*, *15*(8), 6925.

Sartini, S., Luwiyanto, L., Yudiswara, P. A. R., & Nur, F. A. (2024). The Origins and Values of Javanese Philosophy in Nyadran with Goat-Cow Slaughter. *Jurnal Filsafat*, *34*(1), 111–132.

Sun, J., Wu, H., & Shi, S. (2024). Research on the relationship between higher education, technological innovation, and green economy—Analysis based on Chinese Data from 2011 to 2020. *Journal of the Knowledge Economy*, 1–42.

Tilbury, D. (2011). *Education for sustainable development: An expert review of processes and learning*.

Timm, J.-M., & Barth, M. (2021). Making education for sustainable development happen in elementary schools: The role of teachers. *Environmental Education Research*, *27*(1), 50–66.

UNESCO. (2020). *Education for Sustainable Development: A Roadmap*.

Verrysaputro, E. (2025). *Exploring agricultural local wisdom in the indigenous bonokeling community of Banyumas District in Central Java, Indonesia*. *1441*(1), 012025.

Weiss, M., Barth, M., & von Wehrden, H. (2021). The patterns of curriculum change processes that embed sustainability in higher education institutions. *Sustainability Science*, *16*(5), 1579–1593.

Windiyani, T., Setiawan, B., Sofyan, D., Gani, R. A., & Iasha, V. (2025). *KURIKULUM CRT BERBASIS ESD: Teori dan Implementasinya di Sekolah Dasar*. PT. Pena Persada Kerta Utama.

Wu, J., & Zhang, K. (2022). How to evaluate the coordination of green economy, education development, and technological innovation? Take China as example. *Discrete Dynamics in Nature and Society*, *2022*(1), 2027636.

Zulela, M. S., Neolaka, A., Iasha, V., & Setiawan, B. (2022). How is the Education Character Implemented? The Case Study in Indonesian Elementary School. *Journal of Educational and Social Research*, *12*(1), 371–380. Scopus. https://doi.org/10.36941/jesr-2022-0029