



Embedding environment consciousness in English Language Teaching (ELT): Challenges and prospects for sustainable learning

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ABSTRACT

Background: Integrating environmental awareness into English Language Teaching (ELT) has become increasingly important as a response to global sustainability challenges and the need to cultivate environmentally responsible learners through language education. **Methods:** This study employed a descriptive qualitative approach using an integrative literature review of secondary data derived from internationally indexed scientific publications, national journal articles, and relevant policy documents. The analysis was conducted through source selection, thematic categorization focusing on challenges, strategies, and future prospects, and cross-literature integration. **Findings:** The results reveal several barriers to integrating environmental awareness into ELT, including limited environmental literacy among teachers, insufficient eco-pedagogical training, and curricula that remain predominantly language-oriented. However, innovative approaches such as project-based learning, Content and Language Integrated Learning (CLIL), and the integration of green digital literacy have demonstrated considerable potential in engaging students with environmental issues while simultaneously enhancing language competencies. The findings further indicate that ELT can serve as an effective platform for promoting sustainability values and ecological responsibility. **Conclusion:** Embedding environmental awareness into ELT is essential for advancing the goals of Education for Sustainable Development (ESD), enabling the development of critical, environmentally conscious, and globally responsible learners capable of contributing to sustainable futures. **Novelty/Originality of this article:** This study offers a comprehensive synthesis of challenges, strategies, and future directions for integrating environmental awareness into ELT, contributing to the advancement of eco-pedagogical discourse while providing practical implications for curriculum development and teacher professional training oriented toward sustainability.

KEYWORDS: eco-pedagogy; education for sustainable development (ESD); english language learning; environmental consciousness; epistemic sustainability.

1. Introduction

Over the last two decades, global environmental crises, including climate change, air and water pollution, deforestation, and biodiversity loss, have become increasingly serious threats to the sustainability of human life on Earth. This situation demands a paradigm shift in various sectors, including education. International institutions such as the United Nations (UN), through its 2030 Agenda for Sustainable Development, emphasize the importance of

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education in shaping a society with ecological awareness and environmental responsibility. Education is no longer seen merely as a means of transferring knowledge, but as an instrument of social transformation capable of fostering critical awareness, ecological ethics, and concrete actions for sustainability (United Nations Educational, Scientific and Cultural Organization, 2020; Macintyre et al., 2024).

Education for Sustainable Development (ESD) calls for an education system that equips students to face global challenges through interdisciplinary understanding, active participation, and critical thinking (Kopnina & Meijers, 2014; Gray et al., 2010). Environmental education, as a key component of ESD, instills not only knowledge but also values, attitudes, and behaviors that sustain human–nature relationships. As Jiao et al. (2022) argue, sustainability-oriented education must be both multidimensional and multicultural, accommodating diverse perspectives and cultural contexts to strike a balance between human development and ecological preservation. Hence, learning should extend beyond academic achievement to cultivate ecological character, empathy toward the planet, and social responsibility.

In the era of globalization and digitalization, the role of education in addressing ecological issues has become more complex and urgent. The spread of information technology has made environmental crises more visible, yet at the same time, consumerism and digital waste have introduced new environmental burdens. This paradox demands that schools not only teach about sustainability but also through sustainable practices and mindsets (Wals, 2023). Therefore, educators are increasingly challenged to integrate ecological literacy across disciplines, ensuring that students develop the capacity to critically analyze environmental problems, communicate solutions, and act responsibly in their communities.

Within this broader vision, English Language Teaching (ELT) plays a strategic role. English, as the world's lingua franca, serves as a bridge for intercultural communication and a medium for spreading sustainability values across nations (Crider et al., 2020). Language classrooms provide authentic opportunities to discuss global challenges, such as climate justice, biodiversity loss, and sustainable development, while fostering students' ability to articulate these ideas in an international context. Through ELT, learners can access diverse perspectives on sustainability, exchange ideas with peers worldwide, and participate in environmental discourse that transcends linguistic and cultural boundaries. Teachers thus have the opportunity to incorporate ecological themes, such as climate resilience, renewable energy, sustainable consumption, and social equity, into reading, writing, listening, and speaking lessons. This approach, often referred to as eco-pedagogy or sustainable ELT, emphasizes both linguistic mastery and ecological awareness (Kazazoglu, 2025).

The sustainable ELT approach fosters not only communicative competence but also transformative learning. It aligns with Kollmuss & Agyeman (2010) model, which defines environmental consciousness as a synthesis of awareness, knowledge, attitudes, and action. Gatersleben et al. (2017) further highlight that both cognitive and affective dimensions are crucial in forming pro-environmental behavior. In the ELT context, this means enabling students to read, write, and discuss sustainability-related issues critically while motivating them to participate in real-world environmental initiatives. When students engage with meaningful environmental topics through language, they simultaneously strengthen their linguistic skills, critical thinking, and moral reasoning, a triad essential for 21st-century learners.

Despite this potential, however, the integration of sustainability into ELT remains limited, especially in EFL (English as a Foreign Language) contexts. Research reveals that many teachers still prioritize linguistic outcomes over ecological values, often due to a lack of training in sustainable pedagogy, insufficient institutional support, and misalignment between curriculum goals and sustainability objectives (Bulut, 2025; Rudenko et al., 2024). The dominant perception that language teaching should remain value-neutral further inhibits innovation. In reality, language education is never neutral; it carries ideological,

cultural, and ethical dimensions that shape how students perceive the world (Stibbe, 2015; Stibbe, 2021).

In Indonesia, these challenges are particularly evident. Adam & Ali (2025) found that elementary-level English teachers still face several challenges in integrating environmental themes into English lessons, mainly because of limited resources and a lack of specific training in eco-literacy-based instruction. Several studies (Marda et al., 2025; Tatin et al., 2024; Ekasiwi & Bram, 2023) confirm that Indonesian ELT curricula and textbooks often overlook pressing environmental issues, instead focusing on conventional urban- and lifestyle-oriented topics. This lack of contextual relevance not only reduces engagement but also prevents students from recognizing the connection between language learning and sustainable practices in real life. To bridge this gap, both teachers and policymakers require frameworks that facilitate the translation of sustainability goals into actionable teaching strategies and classroom practices (Simpson et al., 2021).

In recent years, a growing body of research has demonstrated the potential of innovative pedagogical models for embedding sustainability in language learning. Approaches such as Project-Based Learning (PBL), Content and Language Integrated Learning (CLIL), and Digital Eco-Literacy have been widely recognized for enhancing student motivation, participation, and ecological awareness (Nazarenko, 2023; Mustafa et al., 2022). For instance, PBL allows students to engage in hands-on projects such as Green English Campaigns, Eco-poetry writing, or Climate Action Essays, combining creativity with civic responsibility. Similarly, CLIL encourages students to learn scientific and environmental content through the English language, thereby reinforcing both cognitive and linguistic development. Meanwhile, digital eco-literacy utilizes technology to promote sustainability, such as through virtual exchanges, online debates about environmental policies, and eco-themed multimedia storytelling.

Yu & Guo (2024) conceptualize these methods under transformative pedagogy, where learning transcends academic boundaries and inspires students to become active agents of environmental change. Likewise, Nugraha & Ridwan (2019) found that environment-themed project-based learning (PBL) in junior high school settings enhances students' narrative writing skills while fostering their ecological empathy. These findings suggest that when ELT integrates sustainability values, it supports not only language proficiency but also holistic learning that shapes students' attitudes, actions, and identities as global citizens.

Therefore, English language teaching holds a strategic position in achieving the Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 13 (Climate Action). By embedding sustainability into ELT, educators can promote awareness of environmental challenges, enhance global communication skills, and foster intercultural collaboration aimed at planetary well-being. However, despite the increasing academic interest, several research gaps remain. First, few studies examine how teachers internalize environmental awareness within their pedagogical decision-making, such as how they select texts, design classroom tasks, or facilitate discussions on sustainability. Second, most existing studies are situated in higher education or teacher-training programs, leaving limited insights into secondary or grassroots contexts (Muslimah et al., 2021). Third, there is little understanding of how environmental awareness intersects with students' language-learning motivation and identity formation. Exploring these interactions is crucial to understanding how ELT can meaningfully contribute to sustainability.

At the theoretical level, the growing shift toward eco-linguistics and critical eco-pedagogy offers a transformative framework for language education. According to Stibbe (2015), eco-linguistics views language as a social force capable of shaping human-nature relationships; thus, language education should empower students to critique and reconstruct narratives that affect environmental justice. Nazarenko (2023) similarly emphasizes that sustainable ELT should involve critical awareness of environmental discourse across media, literature, and intercultural communication. In this way, the language classroom becomes a site of reflection and activism where learners use English to advocate for sustainability and social equity.

Integrating sustainability into ELT also supports the development of 21st-century competencies, including critical thinking, collaboration, creativity, and communication (Ange & Gougou, 2025). Classroom activities such as environmental debates, discourse analysis, and persuasive writing on local ecological solutions can nurture empathy, civic engagement, and reflective learning. In Indonesia, this aligns with the Pancasila Student Profile policy, which encourages cooperation, global awareness, and environmental stewardship as part of national character education (Ministry of Education, Culture, Research, and Technology, 2022).

In light of these arguments, this study seeks to contribute both empirical and conceptual insights into Embedding Environmental Consciousness in English Language Teaching. Specifically, it aims to: 1) Identify the specific challenges faced by teachers and educational institutions in integrating environmental awareness into the English language teaching curriculum; 2) Analyze the pedagogical strategies and approaches currently employed in eco-ELT practices within both formal and non-formal educational settings; 3) Examine the prospects for using ELT as a tool to develop sustainable learning and foster students' ecological awareness.

Ultimately, this study addresses the urgent need to reposition English education as a driver of sustainability, especially within developing countries like Indonesia, which are navigating the dual demands of modernization and environmental preservation. By situating ELT within the broader ESD framework, this article contributes to the growing international discourse on sustainable education, highlighting the potential of language teaching not only to improve communication skills but also to inspire ecological responsibility and global solidarity. To conceptualize the relationship between language learning and sustainability, this study proposes a conceptual framework illustrating how linguistic competence, environmental literacy, and community engagement intersect within sustainable ELT practices.



Fig. 1. Conceptual model of sustainable ELT integration

2. Methods

2.1 Research design and data sources

This study employs a qualitative integrative review design aimed at mapping the challenges and opportunities for embedding environmental awareness into English Language Teaching (ELT). Given that the topic lies at the intersection of language pedagogy,

sustainability education, and environmental policy, the study requires a method capable of synthesizing diverse conceptual and empirical insights rather than collecting primary field data. The integrative review method, as conceptualized by Whitemore & Knafl (2005), is particularly appropriate for interdisciplinary and emergent topics. It allows for the inclusion of theoretical, empirical, and policy-based sources to construct a comprehensive synthesis framework. This approach thus ensures a holistic understanding of how environmental consciousness has been conceptualized, operationalized, and applied in ELT contexts worldwide.

The qualitative nature of this study reflects its interpretive and exploratory objectives. The goal is not to quantify phenomena but to understand meanings, perspectives, and pedagogical patterns surrounding sustainability in English language learning. Unlike systematic reviews, which primarily summarize empirical evidence using rigid inclusion criteria, integrative reviews combine data from various methodological traditions to capture conceptual richness and theoretical evolution. It also differs from scoping reviews by going beyond mapping; it provides critical interpretation and synthesis of the findings. The use of this method is particularly justified because sustainability-oriented ELT is still a developing area, requiring analytical flexibility to integrate findings from different research designs, education levels, and sociocultural contexts.

The data analyzed in this study come from two primary groups. The first group consists of academic journal articles, both international and national, indexed in Scopus, DOAJ, or Sinta levels 1–2, which discuss eco-pedagogy, sustainable English Language Teaching (ELT), or environmental literacy in the context of language learning. The second group comprises institutional publications and policy documents from organizations such as UNESCO, United Nations Educational, Scientific and Cultural Organization (UNESCO), Organisation for Economic Co-operation and Development (OECD), and the Indonesian Ministry of Education, which outline frameworks, objectives, and guidelines for achieving sustainability in education. These two types of data were selected to provide both theoretical and practical insights, aligning educational policy discourses with research-based pedagogical perspectives.

2.2 Literature search and selection criteria

To ensure quality and relevance, three inclusion criteria were applied. First, thematic relevance requires that articles or documents address environmental awareness within English language education or discuss pedagogical strategies that integrate sustainability. Second, temporal relevance is considered, restricting sources to publications between 2015 and 2025 to capture recent post-ESD developments and current sustainability paradigms. Third, accessibility and scholarly legitimacy were ensured by prioritizing publications from established academic indexing systems and officially recognized institutional repositories. Opinion-based essays without conceptual or empirical grounding were excluded, except when they provided meaningful theoretical context. This multi-tiered selection ensured that only authoritative and relevant literature formed the dataset for synthesis.

In addition to the general inclusion criteria described above, more specific operational standards were applied to differentiate international and national publications. For international journal articles, only peer-reviewed studies indexed in Scopus (Q1–Q4) or Web of Science were included to ensure methodological rigor and global academic relevance. Articles published in non-indexed or potentially predatory journals were excluded to prevent methodological bias and ensure academic integrity. For national publications, only journals indexed in Sinta levels 1 and 2 were considered to maintain academic credibility within the Indonesian context. Conference proceedings were excluded unless formally indexed in reputable international databases.

Regarding exclusion criteria, duplicate records, inaccessible full-text articles, and publications lacking clear methodological or conceptual grounding were removed during screening. Studies that addressed sustainability only marginally without explicit integration

into English language pedagogy were also excluded. Institutional and policy documents were included only if officially issued by recognized organizations such as UNESCO, UNEP, OECD, or the Indonesian Ministry of Education. Unofficial reports, opinion-based essays without scholarly foundation, blog posts, and advocacy materials without formal institutional endorsement were excluded from the final dataset.

The data search was conducted across several major academic databases, including Scopus, ERIC, ScienceDirect, Taylor & Francis Online, and Google Scholar. We also searched institutional repositories, including the United Nations Educational, Scientific and Cultural Organization (UNESCO) ESD Resource Bank, the Organisation for Economic Co-operation and Development (OECD) iLibrary, and the *Merdeka Belajar* archive of the Indonesian Ministry of Education. Boolean operators and keyword combinations were used to capture the breadth of the topic, such as eco-pedagogy and English language teaching, sustainable ELT, environmental consciousness and language education, and critical pedagogy and ecology. Indonesian equivalents were also included, such as sustainable English language learning and environmental awareness in English Language Teaching (ELT).

The search yielded 356 records, which were screened at the title and abstract level for thematic fit. Ninety-five documents were retained for full-text review, from which 47 were ultimately included, comprising 32 journal articles, 10 institutional or policy papers, and five conceptual essays.

2.3 Data analysis, trustworthiness, and ethical considerations

Each document was read comprehensively and coded manually following qualitative content analysis principles (Miles et al., 2019). Codes were initially open and descriptive, capturing recurring terms and ideas, then refined into axial codes that represented higher-order categories such as teacher readiness, eco-literacy, curriculum design, and institutional support. The final selective coding process organized findings into three meta-themes corresponding to the study objectives: (1) implementation challenges, (2) pedagogical strategies, and (3) prospects for sustainable learning. The first theme identifies recurring barriers, including limited teacher training, a lack of policy alignment, inadequate materials, and minimal institutional capacity. The second theme synthesizes teaching models, approaches, and tools, such as project-based learning (PBL), content and language integrated learning (CLIL), digital eco-literacy, and critical eco-pedagogy that have been documented as effective. The third theme maps emerging trends and opportunities in eco-ELT, including global citizenship, environmental literacy, and 21st-century competencies that align with SDG 4 and SDG 13.

To organize the data systematically, an analytical matrix was created that mapped each source according to its type (empirical, conceptual, or policy), country or region (developed vs. developing), and educational level (primary, secondary, tertiary). This matrix served as both a visualization tool and a comparative framework for cross-contextual analysis. Thematic synthesis was then performed to identify patterns of convergence and divergence. For example, studies from Northern Europe and East Asia emphasized policy-level integration and institutional sustainability frameworks (Devos, 2023; Macintyre et al., 2024), whereas research from Southeast Asia and Latin America highlighted teacher-driven innovation under resource constraints (Adam & Ali, 2025). These comparative insights were crucial in developing a balanced understanding of global versus local eco-ELT (English Language Teaching) practices.

The integrative analysis process followed three key phases. The first phase, data reduction, involved condensing the annotated findings into concise thematic summaries. The second phase, data display, involved mapping and arranging key ideas into tables and narrative outlines to facilitate synthesis and understanding. The third phase, comparison and contrast, involved evaluating conceptual and contextual variations between sources. Through iterative reading and reflection, the analysis revealed how eco-pedagogical

principles are operationalized differently across various educational systems, cultural orientations, and policy frameworks.

Methodological rigor and credibility were maintained throughout the study through several mechanisms. Inter-researcher triangulation was implemented, where two researchers independently coded 25% of the data and then compared the results to ensure consistency. Discrepancies were discussed and resolved through consensus. This process improved reliability and reduced personal bias. Additionally, an analytic audit trail was maintained, documenting inclusion/exclusion decisions, code development, and analytical memos. This record enabled external reviewers to track how the data evolved into findings, ensuring dependability and transparency. Credibility was further strengthened by citing only peer-reviewed or officially endorsed sources, ensuring methodological soundness and conceptual reliability.

Ethical considerations were also respected. Because the study relies entirely on published secondary data, no human participants were involved, and no ethical clearance from an institutional review board was required. Nonetheless, all sources were attributed correctly and cited in accordance with APA 7th edition guidelines to maintain academic integrity and respect intellectual property rights.

Researcher positionality and reflexivity were acknowledged to enhance transparency and accountability. The authors of this study are scholars of English education and sustainability, with prior involvement in curriculum innovation and teacher professional development projects. This background inevitably shapes interpretive perspectives, particularly in evaluating pedagogical frameworks and policy discourses. Reflexive notes were kept throughout the analysis to monitor assumptions, challenge interpretations, and maintain a critical distance from personal bias (Berger, 2013). Recognizing positionality is especially important in qualitative synthesis because it reinforces interpretive honesty and epistemological clarity.

To ensure trustworthiness, this study adhered to the key qualitative criteria of credibility, dependability, confirmability, and transferability (Nowell et al., 2017). Credibility was strengthened through systematic triangulation and comprehensive referencing. Dependability was achieved through consistent documentation of methodological decisions. Confirmability was ensured through peer debriefing and citation accuracy. Transferability was addressed by providing a detailed description of the context of each source, enabling comparison across settings.

The use of secondary data within an integrative review design offers several methodological advantages. It enables researchers to analyze a large body of evidence without being constrained by geographical or institutional boundaries. It also facilitates comparison across educational systems and allows for the identification of overarching global trends, research gaps, and innovative practices. Furthermore, because sustainability in ELT is still a developing concept, the inclusion of heterogeneous sources from theoretical essays to classroom-based research enriches the understanding of how environmental consciousness is embedded across contexts.

However, this approach has inherent limitations. Relying solely on published literature may lead to contextual imbalance; for instance, studies from developed countries often dominate academic discourse, while those from developing contexts remain underrepresented. Consequently, the synthesis might reflect a structural bias toward well-resourced settings. To mitigate this, the review purposefully included sources from Southeast Asia, particularly Indonesia, to ensure contextual diversity (Nugraha & Ridwan, 2019; Rahmawati, 2025). Another limitation is the absence of first-hand empirical observation. While the review identifies patterns and theoretical propositions, it cannot directly capture lived classroom experiences or measure behavioral change. These gaps present directions for future empirical or mixed-method studies, which can test and refine the conceptual model proposed here.

Ultimately, the integrative analysis yielded two primary outputs: a comprehensive narrative synthesis and a conceptual-analytical framework. The narrative synthesis

captures the theoretical evolution of eco-pedagogy within English Language Teaching (ELT) and identifies how sustainability discourses have shifted from marginal to mainstream in language education research. The analytical framework, presented in matrix form, categorizes the selected literature by theme, type, and context, visually mapping how challenges, strategies, and prospects interact within eco-ELT. This framework connects three interdependent dimensions: enabling conditions (teacher training, curriculum design, institutional policy), pedagogical processes (eco-pedagogy, digital integration, student projects), and learning outcomes (language proficiency, ecological literacy, and global citizenship).

Through these outputs, the study aims not only to synthesize knowledge but also to offer a foundation for future empirical research and pedagogical innovation. The results are expected to inform curriculum developers, teacher educators, and policymakers on how sustainability can be systematically integrated into English language education. By integrating perspectives from global literature and national policy, this method ultimately provides a comprehensive and context-sensitive understanding of the pathways toward sustainable ELT. Table 1 summarizes the thematic categorization derived from the integrative review.

Table 1. Summary of thematic categorization

Theme	Key issues	Representative sources
Challenges	Low environmental literacy, rigid curriculum, lack of institutional support	Rudenko et al. (2024); Macintyre et al. (2024)
Strategies	PBL, CLIL, digital eco-literacy, critical eco-pedagogy	Nazarenko (2023); Adam & Ali (2025)
Prospects	Global citizenship, green digital transformation, policy reform	OECD (2021); Simpson et al. (2021)

3. Results and Discussion

3.1 Challenges in integrating environmental awareness into ELT

Integrating environmental awareness into English Language Teaching (ELT) represents a transformative educational agenda aligned with global sustainability goals. However, findings from the integrative review reveal that its implementation remains uneven, facing multidimensional challenges that span pedagogical, institutional, cultural, and policy domains. These challenges reflect not only technical or curricular limitations but also deeper paradigmatic and ideological tensions in the purpose of language education itself. From a pedagogical perspective, low environmental literacy and limited teacher readiness persist as significant obstacles to implementing eco-pedagogy. Numerous studies report that English teachers, particularly at the secondary level, lack conceptual understanding of how sustainability issues can be meaningfully connected to linguistic content (Rudenko et al., 2024).

Teacher preparation programs in most contexts remain focused on linguistic competence, grammar, vocabulary, reading, and writing without parallel emphasis on socio-ecological values or global citizenship (Macintyre et al., 2024). Consequently, teachers tend to perceive sustainability as peripheral rather than integral to the language learning process. Parry & Metzger (2023) show that although teachers often have an interest in continuing education, many feel unprepared and lack methodological guidance to translate abstract ecological themes into classroom practice. This pedagogical gap results in lessons that are linguistically sound but socially disengaged from pressing global issues. Beyond pedagogical concerns, a deeper sociological explanation is necessary to understand why teachers struggle with environmental literacy. This review therefore examines the structural and identity-based factors shaping these challenges. Figure 2 summarizes the major challenges identified in the literature.

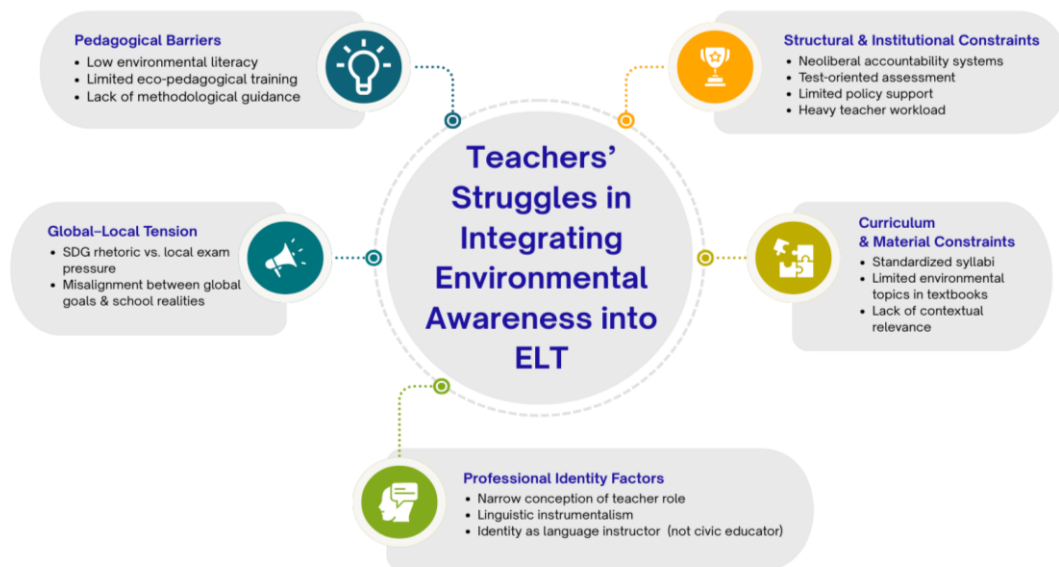


Fig. 2. Thematic mapping of eco-pedagogical challenges

Sociologically speaking, teachers' difficulties with environmental literacy cannot be only attributed to a lack of training or expertise. Instead, they are a reflection of more general structural problems in educational systems that have been influenced by disciplinary compartmentalization, standardized accountability measures, and neoliberal agendas. In many settings, modern education functions under performance-driven frameworks where institutional success is determined by quantifiable results, especially scores on standardized tests (Apple, 2019). English teachers are conditioned in such systems to place more emphasis on curriculum conformance, exam preparation, and linguistic precision than on interdisciplinary or value-oriented inquiry. These quantifiable success measures frequently conflict with sustainability education, which calls for ethical reflection, critical thinking, and dialogic interaction. As a result, educators can view eco-pedagogy as dangerous for their careers or as lacking institutional support.

Additionally, the development of teacher identities is an important sociological factor. Training programs, policy rhetoric, and institutional expectations all contribute to the construction of professional identity (Beauchamp & Thomas, 2009). Teachers internalize a limited understanding of their professional duty when teacher education prioritizes language competency and methodological efficiency without incorporating socio-ecological consciousness. Instead of seeing themselves as facilitators of critical global citizenship, they start to consider themselves more as language teachers. It is challenging to rethink English classrooms as venues for environmental discourse because of this identity framing, which restricts educational creativity. In this way, the conflict is ontological rather than just cognitive; it has to do with how educators perceive their place in the educational system.

Cultural wealth and access to environmental discourse influence teachers' environmental literacy. Using Bourdieu's (1986) theory of cultural reproduction, access to ecological knowledge is unevenly distributed across social settings. Teachers at underserved or rural schools may have restricted access to sustainability networks, professional workshops, and global environmental discourse. Even when environmental challenges are clearly observable locally, such as flooding, rubbish accumulation, or deforestation, they may not be translated into instructional discourse due to a lack of institutional intervention. Thus, environmental literacy is dependent not just on individual drive, but also on institutional access to knowledge and professional communities.

Furthermore, sociocultural conventions governing subject boundaries exacerbate resistance to multidisciplinary integration. Educational systems have traditionally divided knowledge into different fields, each with its own epistemic authority. Language education has generally been viewed as skill-based and communicative, whereas environmental

education is characterized as scientific and content-driven. This epistemic hierarchy prevents professors from crossing disciplinary lines, as doing so may be interpreted as going beyond professional obligations. According to Bernstein (2000), strong topic classification can impede curricular integration and collaborative creativity. As a result, teachers' hesitancy reflects institutional rules rather than personal reluctance.

Finally, global-local friction hampers environmental literacy in ELT. While worldwide policy rhetoric promotes sustainability as a global priority, local school realities may place greater emphasis on urgent economic or academic problems. Teachers working in examination-based systems may face a disconnect between global sustainability discourse and local accountability needs. This structural misalignment causes cognitive and professional strain, contributing to the belief that environmental integration is an ambition rather than a reality. Taken together, these sociological factors show that teachers' challenges with environmental literacy are structurally conditioned. To address them, systemic transformation is required, including revisions to teacher education curricula, redefining professional identity, restructuring accountability systems, and cultivating institutional cultures that legitimate multidisciplinary interaction. Without such institutional changes, eco-ELT may remain an individual endeavor rather than a long-term educational movement.

The structural and curricular dimension adds another layer of complexity. In many developing contexts, curriculum frameworks still emphasize cognitive achievement and test-oriented assessment, leaving limited room for affective and value-based learning (Yu & Guo, 2024). English syllabi are typically standardized, making it difficult for teachers to adapt materials to local environmental contexts. Nurhidayah et al. (2023) found that Indonesian English textbooks predominantly feature everyday topics, such as hobbies, family, and holidays, while overlooking authentic ecological issues, including water pollution, deforestation, and waste management. This lack of contextualization restricts students' opportunities to engage in critical discourse and environmental reflection. As noted by Macintyre et al. (2024), sustainability education requires contextual learning grounded in local realities; otherwise, students develop an abstract ecological awareness that is detached from their daily experiences.

Beyond pedagogical and curricular barriers, cultural and disciplinary perceptions also influence the slow adoption of eco-ELT. There remains a widespread assumption that environmental education belongs to the domain of science or geography, rather than language (Cates, 1987; Jacobs & Cates, 2004; Glover, 2022). This compartmentalized view reflects a lingering positivist model of education that separates language learning from moral and ecological consciousness. However, language is the primary medium through which people construct, negotiate, and transform environmental meanings (Stibbe, 2015). As Kazazoglu (2025) asserts, ELT can serve as an epistemological bridge where communication skills intersect with ethical reflection and civic engagement. When language classrooms fail to acknowledge this role, they risk reinforcing linguistic instrumentalism at the expense of ecological citizenship.

From an institutional and policy standpoint, the absence of systemic support remains one of the most significant barriers. Many schools lack infrastructure, funding, and professional training to implement sustainable education initiatives (OECD, 2021). Even when national policies endorse sustainability, such as Indonesia's *Freedom in Learning/Merdeka Belajar* and *Driving School/Sekolah Penggerak* programs, eco-pedagogy has not yet been positioned as a core component of curriculum reform (Ministry of Education, Culture, Research, and Technology, 2022). Teacher workload, rigid scheduling, and insufficient administrative encouragement further hinder experimentation with sustainability-oriented ELT. Without institutional monitoring or incentives, sustainability remains a matter of individual teacher initiative rather than systemic transformation (Cortese, 2021).

Finally, the epistemological challenge lies in shifting from education about sustainability to education as sustainability (Gray et al., 2010). The former treats

environmental awareness as a topic to be taught, while the latter positions sustainability as a guiding principle that shapes pedagogy, learning outcomes, and institutional culture. This shift demands reflexivity among teachers and policymakers to reconceptualize language education as both a communicative and ecological practice. In summary, the challenges are interdependent: inadequate teacher preparation, rigid curricula, fragmented disciplinary paradigms, and limited policy support collectively constrain eco-ELT. These findings underscore the need for an integrated ecosystem of change, where professional development, curriculum innovation, and institutional leadership work in synergy to embed sustainability at the heart of English language education.

3.2 Strategies and approaches for integrating environmental awareness into ELT

Despite these challenges, the literature reveals several promising strategies that demonstrate the feasibility of integrating environmental awareness into ELT. The most frequently documented and empirically supported approaches are Project-Based Learning (PBL), Content and Language Integrated Learning (CLIL), Digital Eco-Literacy, and Critical Eco-Pedagogy. These methods share standard features, emphasizing collaboration, contextual learning, reflection, and real-world application as key dimensions of Education for Sustainable Development (ESD). Project-Based Learning (PBL) fosters action-oriented learning by engaging students in authentic, problem-solving tasks related to environmental issues. For instance, learners might design digital campaigns on waste reduction, compose essays about local climate actions, or produce bilingual videos promoting eco-friendly lifestyles. Adam & Ali (2025) demonstrated that integrating environmental themes into PBL enhanced students' writing proficiency and ecological empathy simultaneously. Similarly, Rahmawati (2025) found that PBL cultivates critical awareness because students learn to connect language with social reality. Through sustained inquiry, PBL transforms learning from passive reception to participatory transformation, aligning with Deweyan principles of experiential learning.

Content and Language Integrated Learning (CLIL) offers another practical pathway by merging content knowledge and linguistic competence. When sustainability topics such as renewable energy or biodiversity become the medium of instruction, learners engage cognitively and linguistically at deeper levels (Yu, 2024). CLIL promotes critical thinking, intercultural understanding, and communicative competence because students use English as a tool to explore real-world problems. In addition, CLIL aligns well with 21st-century learning frameworks emphasizing interdisciplinary and reflective inquiry (Ange & Gougou, 2025). Recent studies show that integrating environmental themes into English lessons through eco-literacy and CLIL-based approaches can enhance students' vocabulary mastery while fostering ecological awareness and responsibility (Nur et al., 2022).

The third strategy, Digital Eco-Literacy, emerges from the intersection of environmental education and digital pedagogy. As technology increasingly mediates learning, integrating digital tools into eco-ELT broadens access and encourages innovation. Nazarenko (2023) introduced the concept of digital eco-pedagogy, combining online collaboration with sustainability themes. Using platforms like Padlet, Edmodo, or Flipgrid, students participate in cross-border projects such as Virtual Green Exchanges, digital storytelling about sustainable practices, or collaborative climate action debates. These digital experiences cultivate global citizenship, intercultural awareness, and empathy, essential components of sustainable learning (Macintyre et al., 2024). Moreover, digital approaches support low-carbon education by reducing paper usage and fostering virtual collaboration.

Finally, Critical Eco-Pedagogy (CEP) represents the most transformative and theoretically grounded approach. Rooted in Paulo Freire's critical pedagogy, CEP treats environmental education as a process of consciousness-raising, where learners interrogate power relations, consumerism, and ecological discourse in society. Farahiba et al. (2025) argue that integrating CEP into ELT empowers students to challenge unsustainable

narratives found in media and institutional discourse. Through reflective writing, debates, and multimodal analysis, learners develop both linguistic proficiency and ecological literacy. As Stibbe (2015) highlights, eco-linguistics plays a vital role in uncovering how language shapes environmental ideologies, turning the classroom into a site of critical ecological reflection.

Collectively, these approaches demonstrate that environmental awareness is not an extra component of ELT but a reorientation of its purpose and practice. When teachers design tasks that are participatory, dialogic, and socially meaningful, language learning becomes a vehicle for sustainability. These strategies also support the development of 21st-century competencies, the 4Cs (critical thinking, collaboration, creativity, and communication), which the United Nations Educational, Scientific and Cultural Organization (2020) identifies as central to sustainable development. Therefore, eco-ELT not only improves linguistic and academic outcomes but also supports moral and civic education, shaping learners into active global citizens.

Importantly, these pedagogical tactics serve as structural solutions to the previously mentioned sociocultural constraints, rather than simply providing instructional variation. Project-Based Learning, for example, challenges the dominance of standardized, test-oriented learning by emphasizing inquiry, cooperation, and authentic problem-solving above rote linguistic proficiency. In doing so, PBL redefines evaluation as a formative and socially significant activity rather than a strict metric of grammatical correctness. Similarly, CLIL challenges rigid disciplinary boundaries by legitimizing multidisciplinary collaboration, countering the compartmentalization that frequently confines environmental issues to science classes. CLIL transforms language into a medium for knowledge construction rather than a talent to be acquired.

Digital eco-literacy also addresses cultural inequities by increasing access to global environmental discourse. Even in low-resource situations, online platforms allow teachers and students to participate in international discussions, access open educational resources, and collaborate on sustainability initiatives. This digital mediation decreases geographical isolation and promotes professional learning networks, which can help instructors improve their environmental competence (Nugraha & Ridwan, 2019). Meanwhile, Critical Eco-Pedagogy addresses the identity aspect of teaching by reframing educators as facilitators of ethical reflection and social critique. By facilitating dialogic learning and critical analysis of environmental narratives, CEP empowers instructors and legitimizes sustainability as an essential component of language instruction.

Collectively, these approaches show that instructional innovation can act as a catalyst for structural transformation. While systemic reform remains necessary, classroom-level practices can gradually reshape institutional norms and professional identities. Thus, efforts for incorporating environmental consciousness into ELT should be viewed not merely as methodological tools, but also as transformative interventions in larger educational institutions.

3.3 Prospects for sustainable learning through ELT

The analysis also reveals strong prospects for advancing eco-ELT, supported by three converging trends: digital transformation, policy innovation, and cross-sector collaboration. These prospects demonstrate how ELT can evolve into a platform for fostering green global citizenship, a convergence of language competence, ecological awareness, and social responsibility (Kazazoglu, 2025; Simpson et al., 2021).

At the policy level, national initiatives such as *Driving Teacher/Guru Penggerak* and *Freedom in Learning/Merdeka Belajar* provide enabling environments for innovation (Ministry of Education, Culture, Research, and Technology, 2022). Although not explicitly ecological, these frameworks emphasize reflective, student-centered, and contextual learning principles compatible with eco-pedagogy. If future curriculum revisions embed sustainability indicators in English teaching, Indonesia could emerge as a leader in

sustainable ELT in Southeast Asia. Similar policy momentum is evident globally: the OECD (2021) highlights green competencies as essential outcomes for future education systems, urging governments to integrate environmental literacy across subjects, including language.

From a technological perspective, the rise of green digital pedagogy presents vast opportunities for innovation. The combination of digitalization and sustainability, as the OECD (2021) refers to it as green digital transformation, enables teachers and students to engage in collaborative, borderless, and low-carbon learning. Online platforms can facilitate international partnerships, enabling students to co-create environmental projects with peers worldwide, enhancing intercultural communication and ecological empathy. Such practices position ELT as both a linguistic and civic enterprise in the digital age (Nazarenko, 2023; Yu & Guo, 2024).

The community-based dimension further expands the transformative potential of eco-ELT. For example, a youth English training course focused on mangrove forest conservation in Thailand demonstrated that content-based instruction can enhance both language skills and environmental awareness (Chumphong et al., 2022). These initiatives engage students in tree planting, waste reduction campaigns, and eco-literacy workshops, demonstrating how ELT can serve as a social practice that promotes sustainability. In Indonesia, several pilot projects within *Sekolah Penggerak* programs have begun adopting similar models, linking English learning with school-based environmental movements (Rahmawati, 2025).

Conceptually, the prospects of sustainable ELT lie in its ability to redefine learner identity. Instead of viewing English learners merely as users of a global language, sustainable ELT envisions them as global ecological citizens, individuals capable of thinking critically, acting ethically, and communicating across cultures for a sustainable planet (Ange & Gougou, 2025). In this view, linguistic competence is inseparable from moral consciousness and ecological literacy. Future-oriented ELT thus becomes an avenue for transformative learning, where students are not only fluent speakers but also reflective agents of environmental change. These findings collectively reinforce the transformative power of eco-ELT. Integrating sustainability into English teaching aligns with global educational priorities under SDG 4 (Quality Education) and SDG 13 (Climate Action). By connecting language, culture, and environment, eco-ELT contributes to humanizing education an education that empowers students to engage critically with the world while imagining alternative, sustainable futures (UNESCO, 2020; Stibbe, 2015).

However, achieving these opportunities takes more than pedagogical optimism; it necessitates systemic realignment within educational systems. From a structural standpoint, sustainable ELT will only thrive if it is integrated not as an optional enrichment but as a measurable educational priority. Policy frameworks must incorporate sustainability discourse into curricular indicators, teacher evaluation systems, and resource allocation processes. Without institutional responsibility, eco-ELT may stay dependent on individual teacher initiative rather than becoming a long-term institutional practice. It is equally necessary to change teacher education programs. Environmental literacy, interdisciplinary curriculum design, and critical pedagogy must be key components of both pre-service and in-service professional development, not peripheral modules. When sustainability becomes ingrained in teachers' professional habits, incorporation into classroom practice becomes usual rather than extraordinary. Universities and teacher training institutions, therefore, play a critical role in expanding the epistemic boundaries of language teaching.

Furthermore, sustained ELT necessitates epistemic integration across disciplines. Collaborative curriculum development between language teachers and scientific or social studies educators can foster shared ownership of sustainability objectives. Such cross-sector collaborations break down the hierarchical divide between content subject and skill subjects, establishing ELT as a place of civic and ecological creation. Institutional leadership plays an important role in building collaborative environments that enable and reward interdisciplinary exploration. Finally, long-term possibilities are dependent on integrating global environmental discourse with local educational realities. While international frameworks like SDGs 4 and 13 provide normative guidance, contextual adaptation assures

relevance. Sustainable ELT must consequently stay sensitive to local environmental issues, societal values, and economic limits. This global orientation, which emphasizes thinking globally while doing locally, views English classrooms as dynamic environments where global ecological citizenship is based on real community experience. In this way, the future of eco-ELT is not predetermined; it is dependent on collective commitment, systemic reform, and ongoing educational innovation. When these factors come together, English language education can progress beyond instrumental communication to transformative sustainability learning. Table 2 outlines the important international and national policy frameworks that influence the incorporation of sustainability into ELT.

Table 2. Key policy documents and their influence on ELT

Policy document	Organization	Key focus	Implication for ELT
Education for Sustainable Development Roadmap	UNESCO	Integration of sustainability across curricula	Encourages interdisciplinary teaching including language
Green Skills for the Future	OECD	Environmental competencies	Supports sustainability literacy in education
Merdeka Belajar	Ministry of Education, Culture, Research, and Technology	Student-centered learning	Allows integration of local environmental themes
Sekolah Penggerak	Ministry of Education, Culture, Research, and Technology	School transformation	Promotes innovative and contextual pedagogy

Overall, the synthesis from this integrative review underscores that the path toward sustainable ELT requires systemic transformation on three interconnected levels. First, at the micro level, teacher training and classroom practice must incorporate sustainability themes as part of communicative competence. Second, at the meso level, schools and institutions need to adopt supportive policies, resources, and collaborative ecosystems to sustain innovation. Third, at the macro level, national curricula and education policy must embed sustainability as a measurable learning outcome across subjects, including English. Only when these three levels align can ELT fully realize its potential as a tool for ecological and social transformation.

4. Conclusions

The integration of environmental awareness into English language teaching (ELT) reflects the evolution of the 21st-century educational paradigm, which positions language as a tool for social reflection, ecological action, and global character building. This study reinforces the view that sustainability and language learning are not separate, but mutually reinforcing dimensions. In general, the study's results reveal three major conclusions. First, a significant gap exists between theoretical awareness and practical implementation in the field. Teachers and educational institutions continue to face challenges related to environmental literacy, the availability of relevant teaching materials, and supportive policies. Second, various pedagogical strategies such as PBL, CLIL, Digital Eco-Literacy, and Critical Eco-Pedagogy have been proven to connect linguistic skills with sustainability awareness. Third, the prospects for sustainable ELT development depend heavily on cross-sector collaboration among educators, policymakers, communities, and technology.

Furthermore, this study confirms that eco-ELT functions not only as a medium for language learning but also as a means of social and ecological transformation. Through collaborative and reflective learning, students not only learn to write or speak in English but also develop into global citizens who are caring, critical, and responsible towards the earth. In practical terms, the implications of this research include: 1) For educators, the importance of eco-pedagogy-based professional training lies in enhancing teachers' ability

to integrate environmental issues into their teaching; 2) For educational institutions, there is a need to revise curricula to incorporate sustainability indicators and social values into language learning; 3) For policymakers, there is a need to strengthen green education policy frameworks that encourage pedagogical innovation and interdisciplinary collaboration.

Finally, theoretically, this study expands the discourse of eco-linguistics and sustainable education in the context of ELT, emphasizing that language learning is not merely a means of knowledge transfer, but also a tool for reconstructing human ecological awareness. Through the integration of sustainability values in ELT, education can truly function not only to live in the world, but to “preserve life in the world.”

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Author Contribution

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During the preparation of this work, the author utilized Grammarly to assist with vocabulary development and language editing, ensuring clarity and consistency in accordance with scientific style. After using this tool, the author reviewed and re-edited the entire manuscript as needed and assumes full responsibility for the authenticity and accuracy of this publication.

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