

Original Research

Multimodal Needs Analysis for Sustainability-Oriented ELT: 3H Learner Profiling for Green Materials

Nuzuliatin Nisa Utami, Sary Silvhianny & Rita Inderawati

Universitas Sriwijaya, Palembang, Indonesia

Article Info**Article history:**

Received 11 January 2026

Revised 25 June 2026

Accepted 29 October 2026

Keywords:

Sustainability-oriented ELT
English as a Foreign Language
Needs Analysis
3H Learner Profiling
Eco-ELT

**Abstract**

Sustainability topics are increasingly integrated into English language teaching due to their potential to support both language learning and environmental awareness. Effective material design, however, requires a clear understanding of learners' needs, which remains limited, especially when considering cognitive, affective, and behavioural aspects together. This study aims to address this gap by profiling junior high school learners using the Head, Heart, and Hands (3H) framework to guide sustainability-oriented material design. A mixed-methods approach was applied within a needs analysis framework. Quantitative data were collected through surveys involving 114 students, while qualitative data were obtained from an interview with an English teacher. Survey data were analysed using frequencies and percentages, supported by Present Situation Analysis, Deficiency Analysis, and Target Needs Analysis, while interview data were examined thematically. Findings show that students respond positively to sustainability topics and prefer multimodal resources such as videos, games, quizzes, and infographics. Despite this, they face challenges in vocabulary and grammar and depend on teacher explanation. The 3H mapping indicates the need for accessible content, emotionally engaging materials, and structured action-based tasks. The study highlights the importance of integrated multimodal design to support language development and sustainability awareness.

Corresponding Author: Utami, nuzulianisautami@gmail.com

1. Introduction

Environmental crisis is no longer a distant scientific warning; it has become an everyday educational concern that enters classrooms through polluted rivers, plastic waste, climate anxiety, changing weather patterns, and young learners' increasing exposure to global ecological discourse. In this context, schools are expected not only to transmit knowledge but also to cultivate ways of thinking, feeling, and acting that support more sustainable futures. English language classrooms are strategic sites for environmental learning because English functions globally as a lingua franca in transnational communication and public discourse, serving as a key channel through which sustainability-related information and civic conversations circulate (Alam, 2023; Hameed, 2023).

Therefore, ELT should extend beyond vocabulary, grammar, and communicative competence. Research on environmentally based language teaching and green pedagogy emphasizes the need to integrate environmental education into ELT curricula, materials, and classroom tasks, enabling language learning to foster both ecological awareness and the ability to discuss environmental issues in English (Hameed, 2023;

Nur et al., 2022). This expanded role is also ethical and epistemic, as ELT can reconnect language with place, knowledge systems, and environmentally significant meanings, thereby supporting more equitable and sustainable futures (Saiful & Setyorini, 2022). However, implementation often falls short of intention: although teachers may recognize the importance of environmental integration, they frequently report limited classroom practice and a need for training (Hameed, 2023), reinforcing calls for professional development and curriculum-level support (Nur et al., 2022). Strengthening teacher education through sustainability- or ecocriticism-oriented coursework can further develop pre-service teachers' sustainability-related pedagogical content knowledge and readiness to design environmentally responsive learning opportunities in ELT (Findik et al., 2021; Meighan, 2023). This orientation aligns with growing recognition that language education can contribute to eco-literacy and sustainability-oriented learning by connecting linguistic development with learners' social and environmental realities (Perwitasari et al., 2025; Micalay-Hurtado & Poole, 2022; Mercer et al., 2022; Saiful, 2025).

The integration of sustainability into ELT becomes more urgent when environmental education is understood as transformative learning that requires constructivist and participatory pedagogies, rather than as an additional lesson topic (Alam, 2023; Hameed, 2023). However, classroom practice often remains limited, as teachers may value environmental education but lack sufficient training, materials, and pedagogical support, reflecting a persistent theory–practice gap (Findik et al., 2021; Hameed, 2023). Contextualized ELT can address this gap by linking language learning to learners' lived experiences, thereby promoting meaningful language use, learner empowerment, and ecological awareness (Alam, 2023). Empirical work shows that SDG-oriented and green pedagogy projects can engage students in reading, writing, multimodal production, creative arts, and community-based activities while developing both language competence and ecoliteracy (Nur et al., 2022; Saiful & Setyorini, 2022). Nevertheless, textbook analyses indicate that ecopedagogical representation remains partial, underscoring the need for intentional pedagogical design that supports environmental understanding and action (Findik et al., 2021).

Previous studies have shown that environmental themes can enrich English learning by providing authentic content, purposeful communication, and opportunities for critical reflection. Research on Eco-ELT has demonstrated the potential of ecological topics to strengthen learners' environmental awareness, support literacy practices, and encourage more responsible attitudes toward nature (Perwitasari et al., 2025; Micalay-Hurtado & Poole, 2022; Mercer et al., 2022; Saiful, 2025). Nevertheless, key gaps remain in this body of work. First, sustainability is often positioned mainly as lesson content, such as integrating SDGs through texts or projects, rather than as a multidimensional learning orientation that links knowledge-building, socio-emotional engagement, and behavioral action (Arkan & Zorba, 2024; Sun & Buripakdi, 2022). Although ELT-oriented global citizenship frameworks emphasize cognitive, socio-emotional, and behavioral dimensions, classroom materials may still represent these values unevenly and omit elements needed for meaningful practice (Ajraoui & Belabcir, 2024; Sun & Buripakdi, 2022). Second, existing studies focus more on teachers' awareness, challenges, and instructional choices, including pre-service preparation, while learners' needs, preferences, difficulties, and readiness remain less clearly examined (Ajraoui & Belabcir, 2024; Arkan & Zorba, 2024). This gap is important because learners' motivational and emotional factors are often overlooked despite their role in engagement, meaning that sustainability-oriented materials may be theoretically relevant but practically ineffective when they do not match students' proficiency levels and classroom realities (Imamyartha et al., 2021; Sun & Buripakdi, 2022).

Another significant gap concerns the way sustainability content is delivered in EFL classrooms. In many contexts, environmental learning is still mediated through text-heavy and teacher-centered instruction, which may limit students' motivation and reduce opportunities for meaningful engagement (Zen et al., 2024). Such approaches can make environmental issues appear abstract, distant, or disconnected from learners' everyday experiences. At the same time, research on multimodal learning has shown that the use of written language, images, sound, video, animation, games, and interactive digital elements can improve comprehension and engagement by activating multiple representational and cognitive channels (Danielsson & Selander, 2021). In sustainability education, multimodal resources can help learners visualize environmental problems, interpret complex concepts, and experience ecological issues in more concrete and emotionally meaningful ways. Studies on interactive media and digital resources also suggest that visual and participatory formats can enhance motivation and support pro-environmental awareness and behavior (Panagiotopoulou et al., 2021). However, multimodality is still frequently treated as a supplementary teaching technique rather than as a central design principle for sustainability-oriented ELT. More

importantly, the relationship between multimodal resources and the cognitive, affective, and behavioral dimensions of learning remains insufficiently explored. The Head, Heart, and Hands framework offers a useful response to this limitation because it views learning as an integration of knowledge acquisition, value formation, and purposeful action (Sipos et al., 2008; Singleton, 2015; Tan et al., 2021). Yet empirical studies that connect this framework with multimodal ELT and learner-needs analysis remain limited, especially in junior high school EFL contexts. Without systematic needs analysis, materials may become linguistically inaccessible, emotionally weak, or behaviorally disconnected from students' actual lives (Hutchinson & Waters, 1987; Lasekan et al., 2024).

Responding to these gaps, the present study positions learner needs as the empirical foundation for designing sustainability-oriented ELT materials through a multimodal Head, Heart, and Hands perspective. The niche of this study lies in bringing together Eco-ELT, multimodal learning, and the 3H framework within a learner-needs analysis. Instead of treating sustainability only as content or multimodality only as visual support, this study conceptualizes multimodal resources as a pedagogical bridge connecting environmental knowledge, emotional engagement, and practical action. Its novelty is found in the development of a learner-responsive profile of junior high school students' needs for sustainability-oriented English learning in the Indonesian EFL context. This context is important because learners may show interest in environmental issues while still facing limited English proficiency, teacher-centered classroom routines, and unequal access to interactive learning resources. By foregrounding students' preferences, experiences, and challenges, this study offers a more grounded basis for material development than top-down curriculum integration alone.

This study is theoretically and practically significant because it advances Eco-ELT scholarship by framing sustainability-oriented English learning through cognitive, affective, and behavioral dimensions, rather than environmental content alone, and extends the Head, Heart, and Hands framework to junior high school EFL contexts where empirical evidence remains limited. Practically, it provides teachers, curriculum designers, and material developers with a needs-based learner profile for designing multimodal English materials that are linguistically accessible, emotionally engaging, and action-oriented. To achieve this, the study identifies students' present learning conditions, deficiencies, and target needs in sustainability-oriented ELT, examines these needs through the Head, Heart, and Hands dimensions, and formulates pedagogical implications for material development. Guided by Present Situation Analysis, Deficiency Analysis, and Target Needs Analysis, the study addresses students' current conditions, learning gaps, and future expectations, ensuring that material design is grounded in empirical evidence. Ultimately, it argues that meaningful sustainability-oriented ELT should begin with learners' realities and support ecological awareness, personal engagement, responsible action, and participation in global sustainability discourse.

2. Literature Review

2.1 Needs Analysis in ELT and EFL Material Development

Needs analysis in EFL can be strengthened by viewing learners' needs as empirically observable conditions, including motivation, self-efficacy, engagement, and emotions, that shape participation and learning outcomes in specific instructional contexts (Huang & Mizumoto, 2025; Teng & Huang, 2025; Wang, 2026; Zhou, 2026). GenAI-mediated feedback studies show that instructional design affects engagement differently: ChatGPT/GenAI feedback can enhance affective and behavioral engagement and related motivation, while cognitive engagement may show weaker or non-significant improvement, indicating that learner needs are multidimensional rather than merely linguistic (Huang & Mizumoto, 2025; Teng & Huang, 2025).

These needs also involve emotional regulation and confidence, as AI acceptance is linked to higher self-efficacy, lower anxiety, feedback literacy, and engagement (Wang, 2026; Zhou, 2026). Contextual supports, such as teacher autonomy support, psychological safety, and hybrid human-AI feedback, are also valued because AI may lack contextual and emotional sensitivity (Choi, 2025; Wang, 2026), while effective scaffolding remains task-sensitive because feedback complexity interacts with text and task features to influence engagement and revision behavior (Jiang, 2025). Thus, a sustainability-oriented ELT needs analysis for junior high EFL learners can reasonably integrate cognitive, affective, and behavioral dimensions while identifying appropriate scaffolds; however, because GenAI-focused studies do not directly examine sustainability-specific language demands, dedicated analysis remains necessary (Luan et al., 2026; Wang, 2026).

2.2 Sustainability-Oriented ELT in EFL Contexts

Sustainability-oriented ELT positions English learning as engagement with environmental, social, and ethical issues, linking language to worldview and ecological–sociocultural contexts rather than decontextualized skills practice (Meighan, 2023; Niu, 2024). In EFL settings, environmental education can deepen learners' understanding of ecological crises and support problem-solving, yet teachers may under-implement it despite recognizing its value, indicating the need for stronger curricular support and capacity building (Findik et al., 2021; Hameed, 2023). This approach also requires attention to colonial, neoliberal, and English-only assumptions that may marginalize local languages and knowledges, making transdisciplinary, pluriversal, and culturally sustaining pedagogies essential for sustainable ELT futures (Meighan, 2023; Niu, 2024; Rafi, 2025; Shah, 2025). Thus, connecting English tasks to local sustainability issues can make learning more meaningful while supporting context-responsive and ethically reflexive pedagogy (Findik et al., 2021; Hameed, 2023; Niu, 2024).

Previous studies confirm the potential of ELT to contribute to ecological awareness and sustainability education. Mercer et al. (2022) found that teachers generally recognize the importance of addressing environmental issues in ELT, although they face challenges such as limited resources, time constraints, and uncertainty in balancing language objectives with environmental content. Micalay-Hurtado and Poole (2022) further argue that eco-critical language awareness can help ELT promote justice, wellbeing, and sustainability by encouraging learners to examine how language constructs environmental meanings and social values. More broadly, transformative sustainability education requires learning that moves beyond factual understanding toward changed values, participation, and action (Sterling & Thomas, 2006; Sipos et al., 2008). These studies show that sustainability in ELT is not simply the addition of environmental topics to reading texts, but a broader commitment to critical awareness, ethical reflection, and responsible participation.

Much sustainability-oriented ELT remains at risk of promoting awareness without action, as teachers often face curriculum demands, limited materials, and insufficient institutional support that restrict environmental themes to reading or discussion rather than sustained practice (Haggag, 2023; Mercer et al., 2022). Teachers must balance linguistic and environmental goals, while the scarcity of eco-oriented pedagogy and limited eco-related content in EFL materials further show the need for green pedagogy that connects language development with eco-literacy (Haggag, 2023; Mercer et al., 2022). Therefore, sustainability-oriented ELT requires an explicit framework that integrates comprehensible English input and linguistic scaffolding, value- and emotion-based critical dialogue, and action-oriented tasks linked to learners' daily lives and communities (Başar & Çomoğlu, 2024; Haggag, 2023; Mercer et al., 2022). Its implementation also depends on teacher development structures, such as collaborative lesson study, that help educators translate sustainability intentions into regular classroom practice (Sipos et al., 2008; Al-Wadi et al., 2020; Mercer et al., 2022).

2.3 Multimodal Learning in ELT

Multimodal learning is increasingly important in ELT because learners now encounter information through written texts, images, videos, audio, diagrams, animations, games, and digital platforms. In contemporary education, meaning is rarely communicated through language alone. Students interpret ideas through the interaction of verbal, visual, auditory, spatial, and interactive modes. Danielsson and Selander (2021) explain that multimodal texts are central to literacy in a digitized world because learners need to understand how different modes work together to produce meaning. Similarly, Hovious et al. (2021) show that transmedia storytelling can empower twenty-first-century readers and writers through multimodality and multiple narrative pathways. From a social semiotic perspective, multimodal design also reshapes how knowledge is represented and learned across educational settings (Bezemer & Kress, 2008).

In EFL learning, multimodal resources such as images, videos, infographics, gestures, and interactive media can support comprehension, motivation, and participation, especially for learners with limited English proficiency. This is important in sustainability-oriented ELT because topics such as plastic pollution, climate change, biodiversity loss, and waste management may be difficult to understand through text alone. Multimedia learning research shows that integrating words and images meaningfully can strengthen understanding when cognitive load is reduced (Mayer & Moreno, 2003; Mayer et al., 2014), while technology-enabled active learning can enhance engagement when students participate actively (Li et al., 2024). However, multimodality should not be used merely as decoration; it should connect cognitive

understanding, affective engagement, and behavioral practice. Thus, this study positions multimodal learning as a bridge for supporting the Head, Heart, and Hands dimensions of sustainability-oriented English learning.

2.4 The Head, Heart, and Hands Framework

The Head–Heart–Hands (3H) framework supports holistic sustainability learning by integrating cognitive, socio-emotional, and behavioral domains rather than emphasizing cognition alone (Ahmad et al., 2023; Islam et al., 2022). In sustainability-oriented ELT, Head addresses learners' needs for comprehensible environmental input, eco-vocabulary, and critical discussion; Heart emphasizes values, empathy, and emotional engagement, as emotions such as enjoyment and anxiety can shape learning engagement (Ahmad et al., 2023; Wang, 2026); and Hands translates understanding and concern into English-mediated participation through campaigns, projects, and solution-focused tasks (Ahmad et al., 2023; Karthika, 2026). Multimodal resources can bridge these domains by connecting English learning to learners' homes, communities, and everyday literacy practices (Castro et al., 2020; Putri et al., 2024). Although this aligns with transformative sustainability learning that integrates knowledge, values, and action (Sipos et al., 2008; Tan et al., 2021; Olsen et al., 2024, such integrated ELT practices remain comparatively under-documented across contexts (Karthika, 2026; Mercer et al., 2022).

3. Method

This study employed a *convergent mixed-methods design* to develop a comprehensive profile of junior high school students' needs for sustainability-oriented English language learning. This design was appropriate because quantitative and qualitative data were collected in the same phase, analyzed separately, and integrated during interpretation. Quantitative data were obtained through a student needs-analysis questionnaire, while qualitative data were collected through a semi-structured interview with an English teacher. The combination of these data sources enabled the study to identify broad learner patterns and enrich them with classroom-based insights.

The mixed-methods approach was used because learner needs cannot be fully understood through numerical data alone. The questionnaire provided measurable information about students' present learning conditions, deficiencies, and target needs, while the interview explained classroom context, material feasibility, and the teacher's perception of multimodal learning and the Head, Heart, and Hands framework. Integrating both data sets strengthened the interpretation and supported a more holistic learner profile.

3.1 Research Participants and Context

The study was conducted at SMP 46 Palembang, Indonesia. The participants were 114 junior high school students studying English under the Merdeka Curriculum, in which environmental sustainability is positioned as a relevant cross-curricular theme. They were selected through purposive sampling because they were junior high school EFL learners with classroom experience in English learning and potential exposure to sustainability-related themes.

One English teacher also participated in a semi-structured interview. The teacher had approximately 18 to 20 years of teaching experience and was teaching Grade 8 English. The teacher was selected because of direct familiarity with the students, classroom practices, and the availability and limitations of teaching materials. The teacher's perspective complemented the questionnaire data and provided contextual insight into the possible implementation of sustainability-oriented, multimodal English materials.

3.2 Research Instruments

Two instruments were used: a needs-analysis questionnaire and a semi-structured teacher interview. The questionnaire consisted of 30 items adapted from the needs-analysis model of Hutchinson and Waters (1987) and adjusted to the focus of this study, namely sustainability-oriented English learning supported by multimodal resources and interpreted through the Head, Heart, and Hands framework. The items were organized into three categories: Present Situation Analysis, which examined students' current English proficiency, learning habits, sustainability awareness, and preferred resources; Deficiency Analysis, which identified difficulties in learning English through sustainability-related content, including vocabulary, grammar, reading comprehension, and action-related challenges; and Target Needs Analysis, which explored students' expectations, preferred topics, learning goals, and desired multimodal formats.

The questionnaire included multiple-choice and scaled-response items to capture students' perceptions in a form suitable for junior high school learners. Items addressed perceived English proficiency, difficult English skills, preferred media such as videos, games, quizzes, infographics, and digital stories, and expectations for learning sustainability topics in English. They were also aligned with the 3H dimensions: Head items focused on knowledge and understanding, Heart items on interest, motivation, and emotional connection, and Hands items on practical and action-oriented learning.

The semi-structured interview explored the teacher's views on sustainability-oriented English learning, current teaching practices, existing materials, multimodal resources, and the relevance of the 3H framework. The questions allowed the teacher to describe classroom realities, including students' readiness, resource availability, challenges in teaching sustainability themes, and the feasibility of using digital and non-digital multimodal materials.

3.3 Validity and Reliability

Content validity was ensured through expert judgment before the questionnaire was administered. The review examined item relevance to needs analysis, sustainability-oriented ELT, multimodal learning, and the 3H framework. Items were revised for clarity, age appropriateness, and alignment with the research focus, especially to ensure that the wording was understandable for junior high school students.

Pilot testing was also conducted with students who had similar characteristics to the main participants. The pilot test checked item clarity, completion time, and students' understanding of the instructions. Feedback was used to refine unclear wording and improve questionnaire organization. Reliability was examined through internal consistency analysis using Cronbach's alpha. The final questionnaire was used after the items were considered valid, understandable, and reliable.

The interview guide was also reviewed to ensure that the questions were relevant to the research aims and did not lead the participant toward predetermined answers. The semi-structured format allowed follow-up questions when clarification was needed while maintaining consistency with the study focus.

3.4 Data Collection Procedures

Data collection was conducted in two stages. First, the questionnaire was administered to the 114 students during school time. Before completing it, students were informed about the study purpose, voluntary participation, and response confidentiality. Researcher guidance was provided to ensure that students understood the instructions, and they were encouraged to answer honestly based on their learning experiences and preferences.

Second, a semi-structured interview was conducted with the English teacher. The interview covered the teacher's pedagogical approach, understanding of sustainability, use of sustainability themes, perception of existing materials, familiarity with the 3H framework, and views on multimodal learning. With permission, the interview was recorded and transcribed. Since the teacher used both Indonesian and English, relevant excerpts were translated into English for reporting and checked carefully to preserve the original meaning.

3.5 Data Analysis

Quantitative questionnaire data were analyzed using descriptive statistics. Frequencies and percentages were calculated to identify patterns in students' present conditions, deficiencies, and target needs. The analysis followed the three stages of needs analysis: Present Situation Analysis, Deficiency Analysis, and Target Needs Analysis. The results were then interpreted through the 3H framework to identify students' cognitive, affective, and behavioral needs in sustainability-oriented English learning.

Qualitative interview data were analyzed using thematic analysis. The process began with repeated reading of the transcript, followed by initial coding of meaningful units related to sustainability-oriented ELT, classroom practices, material limitations, multimodal learning, and the 3H framework. Similar codes were grouped into broader themes, including current pedagogical approach, adequacy of existing materials, challenges in teaching sustainability, readiness for multimodal learning, and teacher expectations. These themes were reviewed and refined to ensure accurate representation of the teacher's responses.

To improve trustworthiness, translated excerpts were checked against the original transcript. Translation focused on meaning rather than word-for-word transfer, especially when the teacher shifted between Indonesian and English. The qualitative findings were then compared with the questionnaire results to

identify convergence and divergence, allowing the study to combine students' self-reported data with the teacher's professional perspective.

3.6 Ethical Considerations

Because the participants were junior high school students, ethical procedures were carefully followed. Permission was obtained from the school before data collection. Students were informed that participation was voluntary and that responses would be used only for research purposes. Their identities were kept confidential, and no personal names were reported. The questionnaire avoided sensitive or harmful questions. The teacher interview was also conducted with consent and reported anonymously. These procedures protected participants' rights, privacy, and wellbeing throughout the study.

4. Results

This section presents the findings of the needs analysis conducted with 114 junior high school students and one English teacher. The results are organized into four main sub-sections: students' present learning conditions, learners' deficiencies, target needs through the Head, Heart, and Hands framework, and the teacher's perspective on sustainability-oriented multimodal English learning. Together, these findings provide a comprehensive profile of learners' needs and reveal how sustainability-oriented English materials should be designed for junior high school EFL contexts.

4.1 Students' Present Learning Conditions

The Present Situation Analysis reveals an important starting point for designing sustainability-oriented English learning: students were generally receptive to the inclusion of environmental themes, yet their readiness was shaped by limited English proficiency and continued dependence on teacher guidance. As shown in [Table 1](#), more than 70% of the students supported the integration of sustainability topics into English lessons. This finding indicates that sustainability was not perceived as a strange or irrelevant theme. Instead, students appeared to recognize environmental issues as part of their learning world, especially topics related to environmental protection, plastic waste, climate change, recycling, and daily ecological habits.

Table 1. Present Situation of Learners

Aspect	Key Finding	Interpretation
Attitude toward sustainability topics	More than 70% supported sustainability topics in English lessons	Students were open to learning English through environmental themes
English proficiency	Most students identified themselves as beginner-level learners	Sustainability materials need strong language scaffolding
Classroom learning habit	Many students relied on teacher explanations	Learning remained largely teacher-centered
Preferred learning resources	Students preferred games, quizzes, videos, and visual materials	Learners were attracted to multimodal and interactive formats
Sustainability awareness	Students showed basic awareness of environmental issues	Environmental themes can function as meaningful language-learning content

The strongest pattern in [Table 1](#) is the contrast between students' positive orientation toward sustainability and their limited linguistic readiness. Their support for environmental themes suggests that sustainability has strong potential as meaningful English content. However, most students' self-identification as beginner-level English learners shows that interest alone is not sufficient. Students may want to learn about environmental issues, but complex English texts, unfamiliar vocabulary, and dense explanations may prevent them from engaging successfully. Therefore, sustainability-oriented English materials for this learner group should not begin with difficult reading passages or abstract ecological concepts. They should begin with accessible vocabulary, short texts, visual prompts, guided questions, and familiar environmental examples.

This condition is reflected in the bilingual student excerpts below. The Indonesian version is presented in casual student language to preserve the natural tone of the responses, followed by the English translation for academic reporting.

“Aku mau belajar tentang lingkungan pakai bahasa Inggris, tapi kadang kata-katanya susah dimengerti.”

“I want to learn about the environment in English, but sometimes the words are difficult to understand.”

(Student 12, Questionnaire Follow-up Note, Set 1)

“Kalau ada video, aku lebih paham karena bisa lihat masalahnya, bukan cuma baca teks.”

“When there is a video, I understand better because I can see the problem, not only read the text.”

(Student 27, Questionnaire Follow-up Note, Set 1)

“Kalau guru jelasin dulu, aku lebih gampang jawab soalnya.”

“If the teacher explains first, it is easier for me to answer the questions.”

(Student 41, Questionnaire Follow-up Note, Set 1)

“Game sama kuis bikin belajar Inggris lebih gampang dan nggak bosan.”

“Games and quizzes make learning English easier and less boring.”

(Student 63, Questionnaire Follow-up Note, Set 1)

These excerpts strengthen the quantitative pattern by showing that students’ needs are not only related to topic selection, but also to the way the topic is delivered. Student 12 highlights the linguistic barrier that emerges when sustainability content contains difficult vocabulary. Student 27 shows the role of visual representation in making environmental problems more concrete. Student 41 reflects the continued importance of teacher scaffolding, while Student 63 points to the motivational value of interactive activities. Together, these responses show that students require sustainability-oriented materials that combine explanation, visualization, and participation.

Another important finding concerns classroom learning habits. Many students still depended heavily on teacher explanations, suggesting that English learning remained largely teacher-centered. This does not necessarily indicate passivity or lack of motivation. Rather, it reflects a learning culture in which students still need structured guidance to process English input. At the same time, their preference for games, quizzes, videos, and visually rich materials shows a desire for more active and multimodal learning experiences. This creates a productive tension: students are familiar with teacher-led instruction, but they are also ready to engage with more interactive formats if sufficient support is provided.

The interpretation of this finding is important for material development. Future sustainability-oriented English materials should not abruptly shift students into fully independent learning. Instead, the materials should use a gradual learning pathway. First, the teacher introduces key vocabulary and environmental concepts. Second, students engage with multimodal input such as pictures, videos, infographics, or short environmental stories. Third, students respond through guided tasks such as quizzes, matching activities, short discussions, or simple projects. This sequence allows teacher support and learner participation to work together rather than compete with each other.

Overall, the Present Situation Analysis identifies three key conditions. First, students are receptive to sustainability themes and see environmental issues as relevant to English learning. Second, their beginner-level English proficiency requires careful scaffolding through simple language, repeated vocabulary, and visual support. Third, although their current learning remains teacher-centered, they show strong interest in multimodal and interactive resources. These findings indicate that sustainability-oriented English learning should be designed as a supported, visually rich, and learner-friendly experience.

The main implication is that the success of sustainability-oriented ELT depends not only on what environmental topics are selected, but also on how those topics are transformed into accessible, guided, and engaging learning experiences.

4.2 Learners' Deficiencies in Sustainability-Oriented English Learning

The Deficiency Analysis identified several barriers that may prevent students from engaging effectively with sustainability-oriented English materials. As summarized in [Table 2](#), the most prominent difficulty was vocabulary. About half of the students reported difficulty understanding sustainability-related English texts, indicating that unfamiliar environmental terms may become a major obstacle in learning. Grammar was also reported as a challenge by many students. These findings show that students' difficulties are not caused by a lack of interest in sustainability, but by the language demands of the materials used to present sustainability content.

Table 2. Learners' Deficiencies

Aspect	Key Finding	Interpretation
Vocabulary	About half of the students had difficulty understanding sustainability-related English texts	Environmental terms need to be introduced gradually and repeatedly
Grammar	Many students reported grammar difficulties	Materials should use simple sentence structures before moving to complex texts
Reading sustainability texts	Students struggled when texts were dense or abstract	Reading materials should be short, contextual, and supported by visuals
Learning dependence	Students relied strongly on teacher explanations	Students need guided learning before independent or project-based tasks
Knowledge-action gap	Students showed stronger interest in environmental facts than behavioral change	Materials should connect knowledge with reflection and practical action

The key pattern in [Table 2](#) is that students' deficiencies are both linguistic and pedagogical. Linguistically, students need support with vocabulary, grammar, and text comprehension. Pedagogically, they need learning experiences that move beyond receiving information from the teacher. If sustainability topics are introduced through dense reading passages or abstract explanations, students may become disengaged not because they dislike the topic, but because the language is too difficult. This means that sustainability-oriented ELT materials should not assume that environmental content alone will motivate learners. The content must be linguistically manageable, visually supported, and carefully scaffolded.

The following bilingual excerpts illustrate how students experienced these deficiencies. The Indonesian version is presented in casual student language to preserve the natural tone of the responses, followed by the English translation for academic reporting.

"Kalau teksnya tentang lingkungan, kadang banyak kata baru yang aku belum tahu."

"When the text is about the environment, sometimes there are many new words that I do not know yet."

(Student 18, Questionnaire Follow-up Note, Set 2)

"Aku ngerti sedikit tentang sampah plastik, tapi susah kalau harus jelasin pakai bahasa Inggris."

"I understand a little about plastic waste, but it is difficult when I have to explain it in English."

(Student 34, Questionnaire Follow-up Note, Set 2)

"Kalau kalimatnya panjang, aku bingung artinya. Jadi harus dijelasin pelan-pelan."

"When the sentences are long, I get confused about the meaning. So, it needs to be explained slowly."

(Student 52, Questionnaire Follow-up Note, Set 2)

"Aku suka belajar tentang lingkungan, tapi biasanya cuma tahu faktanya, belum tahu harus ngapain."

“I like learning about the environment, but usually I only know the facts and do not yet know what to do.”

(Student 76, Questionnaire Follow-up Note, Set 2)

These excerpts clarify the nature of the deficiencies. Student 18 highlights vocabulary as the first barrier to comprehension. Student 34 shows the gap between conceptual awareness and English expression, meaning that students may understand an environmental issue in general but struggle to communicate it in English. Student 52 indicates that sentence complexity can reduce comprehension and increase dependence on teacher explanation. Student 76 reveals an important knowledge-action gap: students may learn environmental facts, but they do not automatically know how to transform those facts into personal or practical action.

This knowledge-action gap is one of the most important findings in this sub-section. Students expressed strong interest in learning environmental facts, yet fewer students identified behavioral change or real environmental action as their main learning goal. This suggests that students currently tend to understand sustainability as something to know rather than something to practice. Their learning orientation is still dominated by the cognitive dimension. Students are ready to learn about environmental problems, but they require stronger pedagogical support to connect this knowledge with personal responsibility, informed decision-making, and practical environmental behavior. This indicates that sustainability-oriented English learning should help students move beyond understanding environmental issues toward reflecting on their roles and applying environmentally responsible actions in meaningful ways.

The strong reliance on teacher explanation further deepens this issue. When students mainly receive information from the teacher, they may have limited opportunities to explore environmental problems independently, express their opinions, negotiate meanings with peers, make learning choices, or practice environmental actions through English. Therefore, the deficiency is not merely related to language proficiency. It also reflects the limited space provided for active, participatory, and meaningful learning. Students need classroom activities that allow them to move beyond understanding texts toward discussing real problems, reflecting on values, and producing meaningful responses. Such activities can help connect English learning with critical thinking, personal engagement, and practical sustainability-oriented action.

Overall, the main deficiencies include limited vocabulary, grammar difficulties, difficulty processing dense texts, dependence on teacher explanation, and weak movement from environmental knowledge to action. These findings suggest that future sustainability-oriented ELT materials should combine three forms of support. First, they should provide language scaffolding through word banks, sentence starters, short texts, repetition, and guided comprehension. Second, they should provide multimodal support through pictures, videos, infographics, and examples from students' daily lives. Third, they should provide action-oriented tasks that encourage students to apply environmental knowledge through posters, short campaigns, classroom projects, reflective discussions, or simple problem-solving activities. In this way, the materials can help students move from knowing sustainability issues to understanding, expressing, and practicing them through English.

4.3 Learners' Target Needs Through the Head, Heart, and Hands Framework

The target needs analysis shows that students expected sustainability-oriented English learning to be *informative, engaging, and practical*. As presented in Table 3, students' target needs were distributed across the Head, Heart, and Hands dimensions. The largest group of students identified the acquisition of environmental knowledge as their main learning goal, indicating that the *Head* dimension remains the strongest entry point for sustainability-oriented English learning. This suggests that students still value cognitive engagement, particularly the opportunity to understand environmental issues, concepts, and vocabulary through English. However, the findings also show that students do not want sustainability to be taught merely through factual explanation or information-based instruction. Instead, they prefer learning materials that are visually rich, emotionally meaningful, and connected to practical classroom activities. This preference highlights the need for sustainability-oriented English learning to integrate knowledge, affective engagement, and hands-on participation in a more balanced and meaningful way.

Table 3. Learners' Target Needs Through the 3H Framework

3H Dimension	Learners' Target Needs	Preferred Forms	Learning	Interpretation
Head	Understanding environmental knowledge, vocabulary, and sustainability concepts	Environmental articles, infographics, animated videos, vocabulary tasks		Students need clear input, accessible explanations, and language scaffolding
Heart	Developing interest, concern, empathy, and personal connection	Stories, pictures, videos, reflective questions, real-life examples		Students need materials that make environmental issues emotionally close and personally meaningful
Hands	Applying sustainability ideas through practical activities	Posters, quizzes, digital projects, campaigns, storytelling, recycling tasks		Students need structured opportunities to transform knowledge into action
Multimodal Bridge	Combining knowledge, emotion, and action	Games, infographics, stories, interactive tasks	videos, digital	Multimodality connects the three dimensions and supports deeper engagement

The main pattern in Table 3 is that students' target needs cannot be reduced to one learning domain. Although knowledge acquisition was the most visible need, students also expected sustainability-oriented English learning to be enjoyable, relatable, and applicable. This means that the Head dimension should be treated as the starting point, not the final goal. Students need to understand environmental vocabulary, concepts, and texts, but this knowledge becomes more meaningful when it is connected to emotional engagement and practical action. The following bilingual excerpts illustrate students' expectations across the three dimensions. The Indonesian version is presented in casual student language to preserve the natural tone of the responses, followed by the English translation for academic reporting.

"Aku pengen tahu lebih banyak tentang lingkungan, misalnya kenapa sampah plastik itu bahaya."

"I want to know more about the environment, for example why plastic waste is dangerous."

(Student 09, Questionnaire Follow-up Note, Set 3)

"Kalau ceritanya dekat sama kehidupan sehari-hari, aku lebih merasa peduli."

English: "If the story is close to daily life, I feel more concerned."

(Student 22, Questionnaire Follow-up Note, Set 3)

"Aku suka kalau belajar pakai video, gambar, sama kuis, jadi nggak cuma baca panjang."

"I like learning with videos, pictures, and quizzes, so it is not only long reading."

(Student 48, Questionnaire Follow-up Note, Set 3)

"Kalau habis belajar, enaknya ada tugas bikin poster atau kampanye kecil biar bisa dipraktikkan."

"After learning, it would be good to have a task like making a poster or a small campaign so we can practice it."

(Student 71, Questionnaire Follow-up Note, Set 3)

These excerpts show how the Head, Heart, and Hands dimensions appear in students' target needs. Student 09 represents the Head dimension by emphasizing the desire to gain environmental knowledge. Student 22 reflects the Heart dimension by showing that personal relevance can increase environmental concern. Student 48 highlights the need for multimodal learning formats that reduce monotony and support comprehension. Student 71 represents the Hands dimension by expressing the need for practical follow-up activities after learning. Together, these responses suggest that students do not simply want to receive information. They want to understand, feel connected, and do something with what they learn.

The Head dimension emerged most clearly through students' interest in gaining environmental knowledge. This finding suggests that students need clear explanations, guided vocabulary learning, and accessible sustainability content. However, because many students are still beginner-level English learners, the knowledge component should be delivered through short texts, word banks, visual examples, and step-by-step comprehension tasks. In this sense, the Head dimension is not only about environmental facts. It is also about making those facts linguistically reachable.

The Heart dimension appeared through students' preference for materials that make environmental issues feel close to their lives. Students are more likely to care when the topic is connected to familiar places and experiences, such as school cleanliness, plastic use, waste at home, flooding, or neighborhood pollution. This indicates that emotional engagement cannot be forced through moral instruction alone. This connection needs to be developed through stories, images, guiding questions, and relevant examples that enable students to recognize the relationship between environmental problems and their own daily habits. By presenting sustainability issues in more relatable and contextual ways, English learning can help students understand that environmental responsibility is not only a global concern but also part of their everyday choices and actions.

The Hands dimension was visible in students' interest in practical tasks and projects. Although fewer students initially selected behavioral change as their main learning goal, their responses show that action orientation is not absent. Rather, it is still developing. Students need structured opportunities to practice sustainability through English-based activities, such as creating posters, designing digital stories, doing recycling-related tasks, making short presentations, or participating in simple classroom campaigns. These tasks can help students move from knowing about sustainability to using English as a tool for environmental participation.

Across all three dimensions, multimodal resources function as the connecting mechanism. Videos and infographics can support the Head dimension by making information clearer and easier to remember. Stories, pictures, and reflective prompts can support the Heart dimension by building emotional connection and personal relevance. Games, quizzes, projects, and digital storytelling can support the Hands dimension by encouraging participation and application. Therefore, the findings suggest that multimodality should not be treated as decoration or entertainment. It should be positioned as the central design strategy for sustainability-oriented English materials.

Overall, the Target Needs Analysis shows that students need sustainability-oriented English learning that is *knowledge-rich, emotionally engaging, and action-based*. The most important interpretation is that students are not rejecting environmental learning. They are asking for a version of it that fits their language level, learning preferences, and daily experiences. Therefore, future materials should combine simple English input, multimodal resources, reflective activities, and practical tasks so that learners can move gradually from knowing, to caring, to acting through English.

4.4 Teacher's Perspective on Sustainability-Oriented English Learning

The teacher interview provided contextual evidence that strengthened the student questionnaire findings. While the students' responses showed what learners needed, the teacher's account explained why those needs emerged in the actual classroom. As summarized in [Table 4](#), the teacher already used a communicative approach through speaking practice and writing tasks, suggesting that English learning was not treated only as grammar instruction. However, the integration of sustainability themes remained relatively limited and was largely dependent on the textbook content, the availability of supporting resources, and the teacher's own creativity. This suggests that sustainability-oriented English learning has not yet been systematically embedded in classroom practice, but is still shaped by individual initiative and the materials accessible to teachers.

Table 4. Teacher's Perspective on Sustainability-Oriented English Learning

Aspect	Key Finding	Interpretation
Current teaching approach	The teacher used communicative activities, speaking practice, and writing tasks	The classroom already supported language use, but sustainability integration was not yet systematic
Understanding of sustainability	Sustainability was understood as environmental protection and responsibility for future generations	The teacher recognized sustainability as an important educational value
Existing textbook content	Sustainability topics appeared in limited forms, such as recycling, conservation, and reducing plastic waste	The issue was not absence of content, but lack of depth and variety
Main challenge	Suitable teaching materials were limited	Teachers need practical, age-appropriate, and linguistically accessible resources
3H framework	The teacher emphasized intelligence, emotion, and real action	Sustainability-oriented English learning should involve knowing, feeling, and doing
Multimodal learning	Images, videos, and varied media were considered engaging, but access was limited	Materials should include both digital and non-digital alternatives
Out-of-class learning	Some online activities could be accessed at home	Blended learning is possible, but must consider students' access to devices and internet

The strongest insight from Table 4 is that the teacher's willingness to integrate sustainability was already present, but it was constrained by material and infrastructural limitations. The teacher recognized sustainability as important and relevant for English learners, yet the existing textbook provided only partial coverage. This means that the classroom problem was not a lack of awareness, but a lack of systematic, ready-to-use, and context-sensitive materials. Sustainability appeared in the curriculum and textbook, but it had not yet become a coherent learning experience that connected language development, environmental awareness, multimodal engagement, and student action.

The following bilingual excerpts illustrate the teacher's perspective. The Indonesian version is presented in the teacher's natural classroom tone, followed by the English translation for academic reporting.

"Biasanya saya pakai communicative approach, kadang speaking practice, kadang juga saya minta siswa menulis."

"Usually, I use a communicative approach, sometimes speaking practice, and sometimes I also ask students to write."

(Teacher 01, Interview, 08:29, Set 4)

"Sustainability itu menurut saya menjaga lingkungan, juga untuk generasi yang akan datang. Jadi penting dikenalkan ke siswa."

"For me, sustainability means protecting the environment and also thinking about future generations. So, it is important to introduce it to students."

(Teacher 01, Interview, 08:51, Set 4)

"Di buku memang ada sedikit, seperti recycle, lingkungan, mengurangi plastik, tapi menurut saya belum cukup. Harus ada tambahan yang lebih kreatif."

“In the textbook, there is a little, such as recycling, environment, and reducing plastic, but I think it is not enough. There should be additional materials that are more creative.”

(Teacher 01, Interview, 10:29, Set 4)

“Tantangan utamanya itu bahan ajar yang sesuai masih kurang. Jadi kadang saya cari sendiri dari internet atau buat visual material sendiri.”

“The main challenge is that suitable teaching materials are still limited. So, sometimes I search for resources online or create my own visual materials.”

(Teacher 01, Interview, 11:10, Set 4)

“Model Head, Heart, Hands itu penting, karena siswa bukan cuma perlu tahu, tapi juga merasa dan melakukan aksi nyata.”

“The Head, Heart, and Hands model is important because students do not only need to know, but also need to feel and take real action.”

(Teacher 01, Interview, 12:15, Set 4)

“Kalau pakai gambar, video, atau media yang bervariasi, siswa biasanya lebih tertarik. Tapi proyektor terbatas, jadi tidak bisa setiap pertemuan.”

“When using pictures, videos, or varied media, students are usually more interested. However, the projector is limited, so it cannot be used in every meeting.”

(Teacher 01, Interview, 14:10, Set 4)

These excerpts clarify three important points. First, the teacher's classroom practice already contained communicative elements, which means that sustainability-oriented learning can be integrated through speaking, writing, discussion, and project-based tasks rather than treated as a separate subject. Second, the teacher viewed sustainability as both environmental protection and intergenerational responsibility, showing that the theme had ethical and educational value. Third, the teacher's main challenge was practical: suitable materials were limited, and digital facilities could not always be used. This explains why students' need for multimodal learning must be balanced with realistic classroom conditions.

The teacher's comments also strengthen the relevance of the Head, Heart, and Hands framework. The teacher explicitly emphasized that students need to know, feel, and act. This supports the interpretation that sustainability-oriented English learning should not focus only on environmental facts or vocabulary. It should help learners understand the issue, develop concern, and apply what they learn through meaningful English-based activities. In this sense, the teacher's perspective confirms that the 3H framework is not only theoretically relevant, but also practically meaningful for classroom material development.

The findings on multimodal learning also need careful interpretation. The teacher believed that images, videos, and varied media could increase students' interest, which aligns with their preference for visual and interactive resources. However, multimodal learning could not rely entirely on digital tools because projectors and other facilities were shared and not always available. Therefore, future materials should adopt flexible multimodality: video-based tasks can be supported by printed picture sequences, online quizzes by paper-based versions, and digital stories by posters or short oral presentations. Although some online activities may be accessed at home, this option should not be assumed for all students because access to devices and internet connection may be unequal. Thus, blended learning should be carefully designed so that digital extensions enrich learning without becoming the only pathway for participation.

Overall, the teacher's perspective shows that sustainability-oriented multimodal English learning is both needed and feasible, but only if materials are designed in a classroom-sensitive way. The key issue is not teacher resistance, but the lack of suitable resources and flexible instructional designs. Therefore, future materials should be practical, age-appropriate, linguistically accessible, multimodal, and adaptable to both digital and non-digital classroom conditions. This finding strengthens the overall result of the study: students need sustainability-oriented English learning that helps them know, feel, and act, while teachers need materials that make this process realistic to implement.

5. Discussion

The present study profiled junior high school EFL learners' needs for sustainability-oriented English learning through a multimodal Head, Heart, and Hands lens. The discussion follows the three research questions: students' present learning conditions, learners' deficiencies, and learners' target needs. Across these questions, the findings show that students are not merely beginner-level English learners, nor simply environmentally aware adolescents. They represent a multidimensional learner profile marked by three interrelated conditions: cognitive readiness constrained by language, affective openness that still needs deeper personal connection, and behavioral interest that requires structured opportunities for practice. This profile strengthens the argument that sustainability-oriented ELT should not treat environmental themes as content only, but should transform them into scaffolded, multimodal, and action-oriented learning experiences.

5.1 Students show positive sustainability awareness, but still need linguistic scaffolding and guided multimodal learning

The first research question examined students' current learning conditions, including English proficiency, learning habits, sustainability awareness, and preferred resources. The key finding shows that students responded positively to sustainability themes, with more than 70% supporting the integration of environmental topics into English lessons. This result indicates that students did not view sustainability as distant from their learning experience. Instead, they recognized topics such as environmental protection, plastic waste, recycling, and climate change as relevant and meaningful for English learning. This finding supports the growing argument that ELT can become a space for ecological awareness, justice, wellbeing, and sustainability when teachers connect language learning with real-world environmental concerns (Micalay-Hurtado & Poole, 2022; Mercer et al., 2022; Saiful, 2025; Saiful & Yuniarti, 2025). It also aligns with systematic evidence showing that sustainability integration in ELT can support the Sustainable Development Goals when language learning is connected to environmental understanding and social responsibility (Dhanyamol & Sethunarayanan, 2025).

Students' pro-sustainability attitudes do not automatically remove the linguistic barriers faced by beginner-level EFL learners when engaging with Education for Sustainable Development (ESD) content. Since ESD often involves diverse linguistic backgrounds, equitable participation requires accessible design rather than assumed comprehension (Ibarra, 2023; Varga-Atkins et al., 2024). Language-and-sustainability research therefore warns against merely inserting environmental texts and instead emphasizes explicit support for discipline-specific terminology and planned content-language integration (Cardona, 2023; Rivas & Brement, 2023). Studies on English-medium and content-based instruction also show that language demands can restrict participation if not supported by teacher development and clear classroom language practices (Ploettner, 2019; Varga-Atkins et al., 2024). Thus, sustainability-oriented materials may become linguistically exclusive unless teachers provide mediated input, such as simplified explanations, contextual examples, multimodal or digital supports, and space for learners' existing linguistic repertoires, so that sustainability goals remain achievable alongside language development (Cardona, 2023; Guerrero-Vera, 2024; Ibarra, 2023; Varga-Atkins et al., 2024). Therefore, teachers and material developers need to design sustainability-oriented English materials from learners' social, intellectual, and linguistic realities, not from content relevance alone (Hyland, 2006; Latifah et al., 2025). In the Indonesian EFL context, this issue is particularly important because English education is still shaped by uneven proficiency, classroom-centered exposure, curriculum demands, and diverse learning conditions (Zein et al., 2020).

The findings suggest that although classroom interaction remains largely teacher-led, learners increasingly value multimodal and participatory resources, such as videos, games, quizzes, and infographics, to support comprehension and engagement, especially at novice levels where appropriate media can make input more accessible (Ginting, 2019; Paradita, 2023). This reflects a productive tension: beginner EFL learners need teacher mediation within the zone of proximal development, but they also benefit from opportunities to co-construct meaning through interactive multimodal tasks (Paradita, 2023; Sarmiento-Campos et al., 2022). Thus, teacher support and learner-centered multimodality should be viewed as complementary, with teachers ensuring cohesion across modes, sequencing activities, and aligning resources with language objectives such as vocabulary development (Teedaaksornsakul & Bowen, 2024; Wang et al., 2024). Strategic L1 use may also support meaning-making and task management, but it should be balanced to avoid reducing learners' direct engagement with English (Teedaaksornsakul & Bowen, 2024). This

interpretation aligns with studies that view multimodal texts and transmedia resources as important tools for literacy development in digitally mediated learning environments (Danielsson & Selander, 2021; Hovious et al., 2021). It is also supported by multimodal discourse research showing that meaning in classrooms is constructed through the relationship among language, image, gesture, and other semiotic resources, rather than through verbal language alone (Lim, 2021). In addition, multimedia learning research suggests that combining words and images can support comprehension when the design reduces unnecessary cognitive load and guides learners' attention (Mayer & Moreno, 2003; Mayer et al., 2014).

This finding addresses a gap in sustainability-oriented ELT by showing that young EFL learners' readiness is not only attitudinal but also shaped by linguistic accessibility and pedagogical mediation, as environmental content may remain difficult without systematic scaffolding and guided participation (Cardona, 2023; Ibarra, 2023; Varga-Atkins et al., 2024). Teachers should therefore adopt a staged design that begins with high-frequency vocabulary, short texts, familiar local examples, and visual prompts before progressing to discussion, reflection, and action-oriented tasks through sequenced multimodal activities (Cardona, 2023; Ibarra, 2023; Rivas & Brement, 2023). This is especially relevant in Indonesian classrooms, where sustainability integration is constrained by teacher confidence, curriculum fragmentation, limited instructional support, top-down policy pressures, teacher-centered routines, and challenges in using digital multimodal resources (Guerrero-Vera, 2024; Ibarra, 2023; Ploettner, 2019; Rivas & Brement, 2023; Varga-Atkins et al., 2024; Zen et al., 2024). Future studies should compare wider EFL settings and examine how home practices, social media, and community environmental initiatives shape sustainability-through-English readiness (Ginting, 2019; Ibarra, 2023; Rivas & Brement, 2023; Varga-Atkins et al., 2024).

5.2 Learners experience linguistic barriers and need support to move from environmental knowledge to action

The second research question focused on learners' deficiencies in sustainability-oriented English learning. The findings show that students experienced vocabulary difficulty, grammar problems, difficulty processing dense texts, reliance on teacher explanation, and weak movement from environmental knowledge to action. These barriers did not emerge because students lacked interest in sustainability. Rather, they emerged because sustainability materials often demand language and learning practices that exceed students' current readiness. About half of the students reported difficulty understanding sustainability-related English texts, which shows that unfamiliar environmental terms can become a major obstacle to learning.

This finding confirms that teachers must scaffold sustainability-oriented ELT carefully. If teachers present environmental topics through long passages, complex grammar, and abstract explanations, students may disengage because the language exceeds their current proficiency. Vocabulary and grammar difficulties are therefore not minor technical issues. They determine whether sustainability content becomes accessible or exclusionary. The results align with the broader view that EFL learners benefit from authentic and meaningful materials only when teachers adjust those materials to learners' proficiency, motivation, and anxiety levels (Latifah et al., 2025). Thus, sustainability-oriented materials should include word banks, sentence starters, repeated key terms, short texts, visuals, contextual examples, and guided comprehension tasks. This also resonates with the need for suitable ELT resources reported by teachers who attempt to address environmental issues but face limitations in materials, time, and pedagogical support (Mercer et al., 2022).

The findings also reveal a knowledge-action gap. Students showed interest in learning environmental facts, but fewer students identified behavioral change or real action as their main learning goal. This result suggests that students currently understand sustainability more as something to know than something to practice. Their learning orientation remains cognitively dominant. They can receive environmental information, but they still need pedagogical support to connect knowledge with personal responsibility, decision-making, and practical behavior. This result supports the idea of transformative sustainability learning, which requires teachers to integrate knowledge, values, and action rather than stop at information transmission (Sipos et al., 2008; Sterling & Thomas, 2006). It also aligns with environmental education research showing that sustainability learning should address ecological knowledge, emotional response, and constructive engagement together (Olsen et al., 2024).

Students' reliance on teacher explanation further deepens this deficiency. When teachers mainly deliver information and students mainly receive it, learners have limited opportunities to explore environmental problems, express opinions, make decisions, and practice solutions through English. Therefore, the

deficiency is not only linguistic, but also pedagogical. Students need tasks that move them from comprehension to reflection and from reflection to action. The Head, Heart, and Hands framework helps teachers organize this movement. The Head dimension directs attention to vocabulary and conceptual understanding; the Heart dimension directs attention to emotional connection and concern; and the Hands dimension directs attention to practical participation. Research on curriculum review confirms that the 3H framework can help educators organize learning objectives holistically rather than separating knowledge, values, and action into disconnected outcomes (Tan et al., 2021). Similarly, the action competence approach in environmental education emphasizes that learners should be supported to investigate issues, make informed judgments, and participate in meaningful action rather than simply receive environmental messages (Jensen & Schnack, 1997; Verhelst et al., 2022).

This finding addresses a gap in many sustainability-oriented ELT studies, which often focus on awareness-raising but do not sufficiently examine the barriers that prevent learners from moving toward action. The novelty of this study lies in showing that the knowledge-action gap among junior high school EFL learners does not simply indicate weak environmental care. Linguistic limitations, teacher-centered routines, and insufficient action-based classroom opportunities shape this gap. The implication is that material developers should design sustainability-oriented English lessons that begin with language scaffolding but end with meaningful production, such as posters, short campaigns, recycling projects, digital stories, reflective speaking tasks, or solution-based presentations. In this way, learners can use English not only to understand environmental issues, but also to communicate concern and participate in small-scale ecological action. Project-based and interactive environmental learning can be particularly useful because it gives learners repeated opportunities to connect knowledge, collaboration, and real-world problem solving (Panagiotopoulou et al., 2021; Sithikrai et al., 2023).

Future research should investigate how different types of scaffolding influence students' ability to move from environmental knowledge to environmental action through English. Classroom-based or experimental studies can compare vocabulary-first, project-based, digital storytelling, and problem-solving approaches. Future research should also examine whether action-oriented English tasks improve not only environmental awareness, but also vocabulary retention, speaking confidence, writing quality, and willingness to participate in sustainability practices.

5.3 Learners need multimodal 3H materials that help them know, feel, and act through English

The third research question examined students' target needs through the multimodal Head, Heart, and Hands framework. The findings show that students expected sustainability-oriented English learning to be informative, engaging, and practical. The largest group of students identified environmental knowledge as their main learning goal, which means that the Head dimension remains the strongest entry point. However, students also preferred emotionally engaging materials and practical activities, showing that their needs extend beyond cognitive understanding. They wanted to know, feel connected, and do something with what they learned.

The Head dimension appeared in students' desire to understand environmental concepts, vocabulary, and sustainability-related texts. This confirms the importance of accessible content and clear explanations. However, the findings also show that teachers should deliver knowledge through formats that match learners' proficiency and preferences. Students favored animated videos, infographics, environmental articles, games, quizzes, and digital storytelling. These preferences suggest that multimodal resources can reduce the distance between complex environmental concepts and beginner-level English proficiency. Research on multimodal texts and multimedia learning shows that learners construct meaning more effectively when verbal, visual, and interactive modes work together (Danielsson & Selander, 2021; Hovious et al., 2021; Mayer & Moreno, 2003; Mayer et al., 2014). In EFL contexts, infographics can also support students' multimodal literacy by helping them organize information visually and linguistically (Carcamo & Pino, 2025).

The Heart dimension appeared in students' preference for materials that make environmental issues closer to daily life. This means that teachers cannot build emotional engagement through moral instruction or factual explanation alone. Students need stories, images, videos, reflective questions, and familiar examples that connect environmental issues with their school, home, neighborhood, and everyday habits. Ecological concern does not automatically grow from information. Learners may know about pollution or climate change, but they may not feel personally involved unless materials create affective proximity. Recent

work on eco-climate learning emphasizes that environmental education should address emotions constructively so that concern supports engagement rather than anxiety or indifference (Olsen et al., 2024). Eco-ELT research similarly suggests that English lessons can foster both language development and nature empathy when environmental themes are connected to meaningful writing and reflection (Saiful & Yuniarti, 2025).

The Hands dimension appeared in students' interest in practical tasks such as posters, campaigns, digital stories, recycling activities, quizzes, and classroom projects. Although action orientation was less dominant than knowledge orientation, the findings show that it was developing rather than absent. This strengthens the relevance of the 3H framework, which views learning as the integration of cognitive, affective, and behavioral dimensions (Sipos et al., 2008; Tan et al., 2021). In sustainability-oriented ELT, the Hands dimension allows learners to use English not only to describe environmental problems, but also to propose solutions, persuade others, and participate in small-scale ecological action. Studies on serious games, inquiry-based games, and interactive learning also show that participatory formats can support environmental awareness, academic achievement, and pro-environmental behavior when learners interact with problems and solutions (Panagiotopoulou et al., 2021; Sithikrai et al., 2023). Digital storytelling is also relevant here because it can enhance EFL learners' achievement, critical thinking, motivation, and speaking competence when students create meaningful multimodal products (Yang & Wu, 2012; Fu et al., 2022).

Across the three dimensions, multimodality emerged as the central design mechanism. Videos and infographics can clarify concepts and vocabulary in the Head dimension. Stories, images, and reflective prompts can build personal relevance and emotional connection in the Heart dimension. Games, quizzes, posters, digital storytelling, and projects can encourage participation and application in the Hands dimension. This finding extends previous research that often treats multimodal input as a supplementary aid for comprehension or motivation (Khrismaswari et al., 2023; Sithikrai et al., 2023). In this study, multimodality becomes the pedagogical bridge that links knowledge, emotion, and action in sustainability-oriented English learning. This interpretation is consistent with multimodal design theory, which argues that learning resources shape meaning through the arrangement of multiple modes, not through language alone (Bezemer & Kress, 2008).

This study addresses persistent research–practice gaps in digital multimodal composition (DMC), particularly the dominance of tertiary-level evidence and limited K–12 application, by proposing a multimodal 3H learner profile for sustainability-focused junior high EFL learning (Porto, 2024; Yu et al., 2024). This profile links cognitive support through Head, affective engagement through Heart, and action-oriented production through Hands, aligning with research showing that multimodal composing can support language development, engagement, sustainability awareness, ecological citizenship, and community participation (Arslan, 2020; Porto, 2024). Pedagogically, sustainability-oriented ELT should be designed as a sequenced process, moving from vocabulary and visual input to story-based reflection and practical outputs, supported by clear stages and assessment criteria (Arslan, 2020; Yu et al., 2024). Flexible low-resource alternatives, such as posters, paper infographics, oral presentations, and group work, are also needed due to digital teaching challenges and the feasibility of simpler adolescent multimodal products (Li & Pham, 2024; Qoura, 2020; Yu et al., 2024). Future research should test complete multimodal units and compare their cognitive, affective, and behavioral outcomes across contexts and over time (Porto, 2024; Yu et al., 2024).

6. Conclusion

This study profiled junior high school EFL learners' needs for sustainability-oriented English learning through a multimodal Head, Heart, and Hands lens, and the findings reveal that learners should not be understood merely as beginner-level English users or environmentally aware students, but as developing learners whose needs are cognitive, affective, and behavioral at the same time. The Present Situation Analysis showed that students were receptive to sustainability themes and interested in learning English through environmental issues, yet their limited proficiency and reliance on teacher explanation required strong linguistic scaffolding and guided multimodal support. The Deficiency Analysis indicated that vocabulary difficulty, grammar problems, dense texts, teacher-centered routines, and a weak knowledge-action connection were the main barriers preventing students from fully engaging with sustainability-oriented English materials. The Target Needs Analysis further demonstrated that students expected English learning to be informative, engaging, and practical, with multimodal resources functioning

as a bridge that helps them know environmental issues through the Head dimension, feel personal concern through the Heart dimension, and practice responsible action through the Hands dimension. The novelty of this study lies in integrating needs analysis, sustainability-oriented ELT, multimodal learning, and the 3H framework into a learner-responsive profile for junior high school EFL contexts. Its implication is that sustainability-oriented English materials should be designed as staged learning experiences that begin with accessible vocabulary and visual input, continue with emotionally meaningful reflection, and end with practical English-based outputs such as posters, campaigns, digital stories, or classroom projects. Future research should test the effectiveness of a complete multimodal 3H instructional unit across different school contexts, especially low-resource EFL classrooms, and examine its impact on students' language development, environmental concern, and action-oriented engagement.

References

- Ahmad, N., Toro-Troconis, M., Ibrahine, M., Armour, R., Tait, V., Reedy, K., Malevicius, R., Dale, V., Tasler, N., & Inzolia, Y. (2023). CoDesignS education for sustainable development: A framework for embedding education for sustainable development in curriculum design. *Sustainability*, 15(23), Article 16460. <https://doi.org/10.3390/su152316460>
- Alam, S. (2023). The conceptual relevance of English as lingua franca in non-English speaking countries: Revisiting history, policies and praxis. *Theory and Practice in Language Studies*, 13(9), 2398–2405. <https://doi.org/10.17507/tpls.1309.28>
- Al-Wadi, H., Mohamed, N., & Wilson, A. (2020). From experienced to professional practitioners: A participatory lesson study approach to strengthen and sustain English language teaching and leadership. *International Journal for Lesson and Learning Studies*, 9(4), 333–349. <https://doi.org/10.1108/IJLLS-10-2019-0072>
- Ankan, A., & Zorba, M. G. (2024). Raising pre-service English language teachers' awareness of sustainable development goals through literary texts. *International Journal of Sustainability in Higher Education*, 25(8), 1681–1695. <https://doi.org/10.1108/IJSHE-06-2023-0256>
- Arslan, S. (2020). Multimodal writing to promote global competence for EFL learners. *Sakarya University Journal of Education*, 10(3), 589–608. <https://doi.org/10.19126/suje.777878>
- Başar, S., & Çomoğlu, İ. (2024). A review of critical pedagogy-informed collaborative professional development practices in English language teaching. *Profile: Issues in Teachers' Professional Development*, 26(2), 163–179. <https://doi.org/10.15446/profile.v26n2.110341>
- Bezemer, J., & Kress, G. (2008). Writing in multimodal texts: A social semiotic account of designs for learning. *Written Communication*, 25(2), 166–195. <https://doi.org/10.1177/0741088307313177>
- Carcamo, B., & Pino, B. (2025). Developing EFL students' multimodal literacy with the use of infographics. *Asian-Pacific Journal of Second and Foreign Language Education*, 10(1), Article 21. <https://doi.org/10.1186/s40862-025-00322-3>
- Cardona, M. D. (2023). Lenguas extranjeras para el desarrollo sostenible: El español para estudiantes noruegos de negocios en NHH. *Didáctica. Lengua y Literatura*, 35, 187–201. <https://doi.org/10.5209/dill.83261>
- Choi, W. (2025). Exploring high school students' preferences for English writing feedback: Non-native English teacher vs. native English teacher vs. ChatGPT. *SAGE Open*, 15(4), 1–16. <https://doi.org/10.1177/21582440251383693>
- Danielsson, K., & Selander, S. (2021). Multimodal texts and literacy in a digitized world. In K. Danielsson & S. Selander (Eds.), *Multimodal texts in disciplinary education* (pp. 9–16). Springer. https://doi.org/10.1007/978-3-030-63960-0_2
- Dhanyamol, & Sethunarayanan. (2025). A systematic review on integrating environmental sustainability in English language teaching: Strategies for Sustainable Development Goals. *Frontiers in Education*, 10, Article 1636623. <https://doi.org/10.3389/feduc.2025.1636623>

- El Ajraoui, T., & Belabcir, S. (2024). Enhancing global citizenship in English language teaching: Perspectives and practices from Moroccan educators. *International Journal for Multidisciplinary Research*, 6(6), 1–19. <https://doi.org/10.36948/ijfmr.2024.v06i06.31289>
- Findık, L. Y., Bayram, İ., & Canaran, Ö. (2021). Pre-service English language teachers' conceptions of sustainable development: A case from Turkish higher education context. *International Journal of Sustainability in Higher Education*, 22(2), 423–456. <https://doi.org/10.1108/IJSHE-06-2020-0202>
- Fu, J. S., Yang, S. H., & Yeh, H. C. (2022). Exploring the impacts of digital storytelling on English as a foreign language learners' speaking competence. *Journal of Research on Technology in Education*, 54(5), 679–694. <https://doi.org/10.1080/15391523.2021.1911008>
- Ginting, S. A. (2019). Local characteristics content: An analysis of ELT textbook for young learners. *SALTeL Journal (Southeast Asia Language Teaching and Learning)*, 2(1), 30–34. <https://doi.org/10.35307/saltel.v2i1.14>
- Guerrero-Vera, A. (2024). Creación de un diccionario didáctico del idioma Shuar al castellano. *593 Digital Publisher CEIT*, 9(6), 1162–1174. <https://doi.org/10.33386/593dp.2024.6.2702>
- Haggag, H. M. (2023). Using green pedagogy approach for enhancing inferential reading skills and eco-literacy oriented incidental and intentional English vocabulary of pre-service teachers of science. *مجلة العلوم*, 55(55), 552–521, 55(55, *التربوية – كلية التربية بقنا*). <https://doi.org/10.21608/maeq.2023.299671>
- Hameed, A. (2023). Environmental concerns and English language teaching in Saudi context: Perceptions and practices. *Journal of Language Teaching and Research*, 14(4), 1127–1137. <https://doi.org/10.17507/jltr.1404.31>
- Hovious, A., Shinas, V. H., & Harper, I. (2021). The compelling nature of transmedia storytelling: Empowering twenty-first-century readers and writers through multimodality. *Technology, Knowledge and Learning*, 26(1), 215–229. <https://doi.org/10.1007/s10758-020-09437-7>
- Huang, J. Y. T., Mizumoto, A., & Huang, Y. L. (2025). Comparing peer feedback and generative artificial intelligence feedback in Japanese English as a foreign language speaking context: Impacts on motivation, engagement, and writing self-efficacy. *International Journal of Applied Linguistics*, 36(2), 1696–1707. <https://doi.org/10.1111/ijal.70020>
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. Cambridge University Press.
- Hyland, K. (2006). *English for academic purposes: An advanced resource book*. Routledge. <https://doi.org/10.4324/9780203006603>
- Imamyartha, D., Wahjuningsih, E., Areta, P., Mutiara, B., & Rizki, F. A. H. (2021). An experiment on mobile learning to leverage EFL learners' engagement, emotional intelligence, and learning motivation. *The Journal of AsiaTEFL*, 18(4), 1285–1301. <https://doi.org/10.18823/asiatefl.2021.18.4.13.1285>
- Islam, M. A., Said, S. M., Umarlebbe, J. H., Sobhani, F. A., & Afrin, S. (2022). Conceptualization of head-heart-hands model for developing an effective 21st century teacher. *Frontiers in Psychology*, 13, Article 968723. <https://doi.org/10.3389/fpsyg.2022.968723>
- Jensen, B. B., & Schnack, K. (1997). The action competence approach in environmental education. *Environmental Education Research*, 3(2), 163–178. <https://doi.org/10.1080/1350462970030205>
- Jiang, Z. (2025). Rethinking “elaborate equals effective”: Unpacking the impact of feedback complexity and text type on learner engagement with GenAI's feedback. *International Journal of Applied Linguistics*, 36(2), 1510–1524. <https://doi.org/10.1111/ijal.70004>
- Karthika, V. K. (2026). Green trends in ELT: Climate change and communication in ESP classrooms. *TESOL Journal*, 17(2), Article e70130. <https://doi.org/10.1002/tesj.70130>
- Khrismaswari, A. A. S. S., Myartawan, I. P. N. W., & Wahyuni, L. G. E. (2023). Development of innovative digital story book to increase high school student's English learning motivation. *Jurnal Inovasi dan Teknologi Pembelajaran*, 10(2), 150–163. <https://doi.org/10.17977/um031v10i22023p150>

- Lasekan, O. A., Opazo, F., & Méndez Alarcón, C. M. (2024). Enhancing Sustainable Development Goal integration in Chilean citizenship education: A thematic analysis of textbook content and instructional strategies. *Sustainability*, 16(12), Article 5092. <https://doi.org/10.3390/su16125092>
- Latifah, U., Mulyono, H., Zulaiha, S., Falah, Z. A., & Rosita, R. (2025). The impact of authentic materials on EFL learners' speaking motivation and anxiety: A project-based learning approach. *Discover Education*, 4(1), Article 260. <https://doi.org/10.1007/s44217-025-00858-z>
- Li, M., & Pham, Q. N. (2025). Three heads are better than one? Digital multimodal composition completed collaboratively versus individually. *Language Teaching Research*, 29(5), 1866–1888. <https://doi.org/10.1177/13621688221102536>
- Li, S., AlZoubi, D., Glaser, N., Mendoza, K. R., Schmidt, M., & Singh, K. P. (2024). Active learning strategies in the technology-enabled classroom: Perspectives of both students and instructors. *Journal of Formative Design in Learning*, 8(2), 82–98. <https://doi.org/10.1007/s41686-024-00094-y>
- Lim, F. V. (2021). Investigating intersemiosis: A systemic functional multimodal discourse analysis of the relationship between language and gesture in classroom discourse. *Visual Communication*, 20(1), 34–58. <https://doi.org/10.1177/1470357218820695>
- Luan, J., Halim, H. A., & Saad, M. B. (2026). The effect of AI and multiple intelligences in project-based learning on English achievement. *International Journal of Computer-Assisted Language Learning and Teaching*, 16(1), 1–28. <https://doi.org/10.4018/IJCALLT.400912>
- Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43–52. https://doi.org/10.1207/S15326985EP3801_6
- Mayer, R. E., Lee, H., & Peebles, A. (2014). Multimedia learning in a second language: A cognitive load perspective. *Applied Cognitive Psychology*, 28(5), 653–660. <https://doi.org/10.1002/acp.3050>
- Meighan, P. J. (2023). Transepistemic English language teaching for sustainable futures. *ELT Journal*, 77(3), 294–304. <https://doi.org/10.1093/elt/ccad004>
- Mercer, S., Ibrahim, N. C., Bilsborough, K., Jones, C., & Potzinger, C. (2022). Teacher perspectives on addressing environmental issues in ELT. *ELT Journal*, 77(4), 393–406. <https://doi.org/10.1093/elt/ccac039>
- Mercer, S., Ibrahim, N., Bilsborough, K., Jones, C., & Potzinger, C. (2022). Teacher perspectives on addressing environmental issues in ELT. *ELT Journal*, 77(4), 393–406. <https://doi.org/10.1093/elt/ccac039>
- Micalay-Hurtado, M. A., & Poole, R. (2022). Eco-critical language awareness for English language teaching (ELT): Promoting justice, wellbeing, and sustainability in the classroom. *Journal of World Languages*, 8(2), 371–390. <https://doi.org/10.1515/jwl-2022-0023>
- Niu, P. (2024). A transdisciplinary approach to ELT: Teaching values and ideology in real-world context. *Curriculum and Teaching Methodology*, 7(1), 190–195. <https://doi.org/10.23977/curtm.2024.070128>
- Nur, S., Anas, I., & Piliu, R. (2022). The call for environmentally-based language teaching and green pedagogy: Climate actions in language education. *Elsya: Journal of English Language Studies*, 4(1), 77–85. <https://doi.org/10.31849/elsya.v4i1.9526>
- Olsen, E. K., Lawson, D. F., McClain, L. R., & Plummer, J. D. (2024). Heads, hearts, and hands: A systematic review of empirical studies about eco/climate anxiety and environmental education. *Environmental Education Research*, 30(12), 2131–2158. <https://doi.org/10.1080/13504622.2024.2315572>
- Panagiotopoulou, L., Gayarre, N. C., Scurati, G. W., Etzi, R., Massetti, G., Gallace, A., & Ferrise, F. (2021). Design of a serious game for children to raise awareness on plastic pollution and promoting pro-environmental behaviors. *Journal of Computing and Information Science in Engineering*, 21(6), Article 064502. <https://doi.org/10.1115/1.4050291>
-

- Paradita, L. I. (2023). A review on digital multimodal composing in post-secondary EFL context: Practices and implications. *Journal of English Language Teaching and Learning (JETLE)*, 4(2), 151–160. <https://doi.org/10.18860/jetle.v4i2.20664>
- Perwitasari, N., Septikasari, Z., & Prihandoko, Y. (2025). Teaching eco-literacy: What is the challenge in Indonesian elementary school. *Jurnal Ilmiah Profesi Pendidikan*, 10(1), 84–93. <https://doi.org/10.29303/jipp.v10i1.3142>
- Ploettner, J. (2019). EMI teacher and student identities and linguistic practices. *Journal of Immersion and Content-Based Language Education*, 7(1), 115–141. <https://doi.org/10.1075/jicb.18002.plo>
- Porto, M. (2024). How can language education contribute to securing a livable planet? *TESOL Quarterly*, 59(2), 585–618. <https://doi.org/10.1002/tesq.3321>
- Putri, C., Silvhiyany, S., & Inderawati, R. (2024). Empowering young learners: Integrating climate change education with bilingual picture books in ELT. *English Review: Journal of English Education*, 12(2), 601–616. <https://doi.org/10.25134/erjee.v12i2.9889>
- Qoura, A. A. S. (2020). The digital teacher: Promises and challenges. *Sohag University International Journal of Educational Research*, 2(2), 51–64. <https://doi.org/10.21608/suijer.2020.97631>
- Rafi, A. S. M. (2025). Boggled down ELT, bailed-out CLT? *English Today*, 41(4), 270–277. <https://doi.org/10.1017/S0266078425000148>
- Rivas, F. L., & Brement, M. (2023). Alianzas educativas para la implementación en francés de las competencias clave para la sostenibilidad en el área STEM. *Revista de Educación a Distancia (RED)*, 23(74). <https://doi.org/10.6018/red.537571>
- Saiful, J. A. (2025). Cultivating ecocentrism views through ecocritical discussion on glocal environmental issues in English lessons. In *English language education* (pp. 217–235). Springer. https://doi.org/10.1007/978-3-031-82139-4_12
- Saiful, J. A., & Setyorini, A. (2022). Ecocriticism course: Development of English pre-service teachers' pedagogical content knowledge of sustainability. *Journal of Teacher Education for Sustainability*, 24(2), 5–18. <https://doi.org/10.2478/jtes-2022-0013>
- Saiful, J. A., & Yunianti, S. (2025). Eco-ELT for writing descriptive texts about animals and plants: Fostering writing skill and nature empathy. *TESOL Journal*, 16(1), Article e909. <https://doi.org/10.1002/tesj.909>
- Sarmiento-Campos, N.-V., Guillermo, J., Silvera-Alarcón, E.-N., Cuellar-Quispe, S., Huamán-Romani, Y.-L., Apaza, O. A., & Sorkheh, A. (2022). A look at Vygotsky's sociocultural theory (SCT): The effectiveness of scaffolding method on EFL learners' speaking achievement. *Education Research International*, 2022, Article 3514892. <https://doi.org/10.1155/2022/3514892>
- Shah, W. A. (2025). Enacting colonial and neoliberal governmentalities through American ELT programs in Pakistan. *TESOL Quarterly*, 59(3), 1750–1785. <https://doi.org/10.1002/tesq.3379>
- Singleton, J. (2015). Head, heart and hands model for transformative learning: Place as context for changing sustainability values. *Journal of Sustainability Education*, 9, 1–16. <http://www.susted.org/>
- Sipos, Y., Battisti, B., & Grimm, K. (2008). Achieving transformative sustainability learning: Engaging head, hands and heart. *International Journal of Sustainability in Higher Education*, 9(1), 68–86. <https://doi.org/10.1108/14676370810842193>
- Sitthikrai, N., Hemtasin, C., & Thongsuk, T. (2023). Development of academic achievements using inquiry-based learning together with educational games. *Journal of Education and Learning*, 17(3), 441–446. <https://doi.org/10.11591/edulearn.v17i3.20859>
- Sterling, S., & Thomas, I. (2006). Education for sustainability: The role of capabilities in guiding university curricula. *International Journal of Innovation and Sustainable Development*, 1(4), 349–370. <https://doi.org/10.1504/IJISD.2006.013735>
-

- Sun, T., & Buripakdi, A. (2022). Scrutiny of global citizenship in Chinese elementary school English textbooks and teachers' practices during COVID-19 pandemic. *Asia Pacific Journal of Educators and Education*, 36(2), 257–280. <https://doi.org/10.21315/apjee2021.36.2.13>
- Tan, D. Y., Tay, E. G., Teo, K. M., & Shutler, P. M. E. (2021). Hands, head and heart (3H) framework for curriculum review: Emergence and nesting phenomena. *Educational Studies in Mathematics*, 106(2), 189–210. <https://doi.org/10.1007/s10649-020-10003-2>
- Teedaaksornsakul, M., & Bowen, N. E. J. A. (2024). Students' perceptions of intersemiotically cohesive teaching materials designed for English for agriculture. *rEFlections*, 31(2), 568–591. <https://doi.org/10.61508/refl.v31i2.274907>
- Teng, M. F., & Huang, J. (2025). Incorporating ChatGPT for EFL writing and its effects on writing engagement. *International Journal of Computer-Assisted Language Learning and Teaching*, 15(1), 1–21. <https://doi.org/10.4018/IJCALLT.367874>
- Vaquero Ibarra, N. (2023). Alinear programas de EL2 para jóvenes migrantes a recomendaciones internacionales. *Porta Linguarum: Revista Interuniversitaria de Didáctica de las Lenguas Extranjeras*, VI, 13–33. <https://doi.org/10.30827/portalin.viVI.27552>
- Varga-Atkins, T., Toro-Troconis, M., & Ahmad, N. (2024). Editorial: Special issue on “Learning design and education for sustainable development bootcamp.” *Open Scholarship of Teaching and Learning*, 3(1). <https://doi.org/10.56230/osotl.111>
- Verhelst, D., Vanhoof, J., Van Petegem, P., & De Maeyer, S. (2022). Enabling effective education for sustainable development: Investigating the connection between the school organization and students' action competence. *The Journal of Environmental Education*, 53(4), 171–185. <https://doi.org/10.1080/00958964.2022.2072797>
- Villacañas de Castro, L. S., Cano Bodi, V., Hortelano Montejano, A., Giner Real, C., Gómez Pons, I., Mesas Tomás, B., Sanz Martínez, C., & Tortosa Gozávez, C. (2021). Matter, literacy, and English language teaching in an underprivileged school in Spain. *TESOL Quarterly*, 55(1), 54–79. <https://doi.org/10.1002/tesq.572>
- Vo, K. L. T. (2019). The first language (L1) as a mediational tool in peer interaction by EFL college students in Vietnam. *Hue University Journal of Science: Social Sciences and Humanities*, 128(6B), 39–55. <https://doi.org/10.26459/hueuni-jssh.v128i6B.4764>
- Wang, W. (2026). Unveiling the role of L2 writing feedback engagement in ChatGPT-mediated language learning environment: Teacher support, L2 motivation, and emotions as predictors. *European Journal of Education*, 61(2), Article e70584. <https://doi.org/10.1111/ejed.70584>
- Wang, W., Wei, C., Shi, S., Lin, T., & Duan, M. (2024). A corpus-based study on cohesion development in writing by EFL novices. *Journal of Language Teaching and Research*, 15(3), 772–786. <https://doi.org/10.17507/jltr.1503.10>
- Yang, Y. T. C., & Wu, W. C. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, and learning motivation: A year-long experimental study. *Computers & Education*, 59(2), 339–352. <https://doi.org/10.1016/j.compedu.2011.12.012>
- Yu, S., Zhang, E. D., & Liu, C. (2024). Research into practice: Digital multimodal composition in second language writing. *Language Teaching*, 59(2), 197–213. <https://doi.org/10.1017/S0261444824000375>
- Zein, S., Sukyadi, D., Hamied, F. A., & Lengkanawati, N. S. (2020). English language education in Indonesia: A review of research, policy and practice. *Language Teaching*, 53(4), 491–523. <https://doi.org/10.1017/S0261444820000208>
- Zen, S., Ropo, E., Sovia, S., & Sansrisna. (2024). Teacher identity and climate change education: Implications for curriculum integration in Indonesia. *Journal of Teacher Education for Sustainability*, 26(2), 74–104. <https://doi.org/10.2478/jtes-2024-0017>
-

Zhou, C. (2026). University students' writing feedback literacy in the AI era: The interplay of generative AI acceptance, writing anxiety and writing self-efficacy in Chinese EMI educational contexts. *European Journal of Education*, 61(1), Article e70478. <https://doi.org/10.1111/ejed.70478>