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Embedding Sustainable Development Goals in EFL via Task-Based Language Teaching: Insights from Teachers' and Students' Perceptions

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ABSTRACT: *Grounded in the growing need to align language education with global sustainability goals, this study examines teachers' and students' perceptions of integrating Sustainable Development Goals (SDGs) into English as a Foreign Language (EFL) instruction through Task-Based Language Teaching (TBLT). Conducted in a Vietnamese multidisciplinary university, the intervention embedded SDG-oriented tasks across six units of a twelve-week course. Participants included six teachers and 346 first-year students. Data were collected through open-ended questionnaires, interviews, classroom observations, and teaching diaries. Findings indicate that students perceived significant gains in sustainability consciousness across cognitive, affective, and behavioural dimensions, while also reporting positive impacts on language development, particularly in speaking and vocabulary. The intervention was perceived to foster transversal skills such as critical thinking, creativity, and collaboration. Both teachers and students reported positive perceptions of the SDG-embedded TBLT approach, emphasizing its capacity to engage learners with authentic, real-world issues while supporting language learning. Nevertheless, challenges related to time constraints, limited resources, and teacher readiness were identified. The findings support the pedagogical value of SDG-oriented TBLT as a practical and scalable approach to embedding sustainability education within EFL contexts. Implications for curriculum design, teacher education, and future research are discussed.*

KEYWORDS: **Education for Sustainable Development, TBLT, SDGs, ELT, sustainability.**

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1. Introduction

Education for Sustainable Development (ESD) has emerged as a key response to global challenges such as climate change, social inequality, and environmental degradation. It aims to equip learners with the knowledge, skills, values, and attitudes needed to contribute to a sustainable future (UNESCO, 2017), aligning closely with the United Nations SDGs (United Nations, 2015), particularly Target 4.7, which aims to "by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through Education for Sustainable Development…" (UNESCO, 2017, p. 8). Consequently, higher education institutions are increasingly expected to integrate sustainability across disciplines, including language education (Leal Filho et al., 2018).

English language teaching (ELT), particularly in EFL contexts, is well positioned to support ESD due to its communicative orientation and engagement with real-world issues. Integrating sustainability themes can provide meaningful contexts for language use while raising learners' awareness of global challenges (Kagawa, 2007; Rieckmann, 2019). However, despite this potential, sustainability remains underrepresented in language teaching materials and is often treated as a peripheral topic rather than systematically embedded in pedagogy (Rudenko, 2023).

This gap is especially evident in Vietnam, where educational reforms increasingly emphasize alignment with global development agendas, including the SDGs. The 2018 General Education Curriculum, for example, promotes competency-based education by emphasizing communication, collaboration, problem-solving, and creativity while reflecting UNESCO's educational orientations and sustainable development priorities (MOET, 2018). Vietnam's commitment to the 2030 Agenda has further encouraged educational institutions to incorporate sustainability and global citizenship perspectives into teaching and learning (Prime Minister of Vietnam, 2017; Le & Nguyen, 2023). Despite growing policy support, the implementation of ESD in Vietnamese higher education remains uneven. Research suggests that understandings of ESD vary considerably among stakeholders, and implementation is often fragmented across institutions (Nguyen, 2019). While national policies incorporate many global sustainability principles, their translation into educational practice is shaped by local political and cultural contexts, creating tensions between transformative and traditional approaches to education (Bengtsson, 2022). Existing studies have identified challenges such as teacher-centred pedagogy, large class sizes, limited resources, and insufficient institutional support, all of which constrain effective ESD implementation (Kieu et al., 2016). At the same time, content-heavy curricula, examination-oriented assessment systems, limited instructional time, and inadequate professional development opportunities continue to impede implementation. In contrast, learner-centred and participatory approaches have been shown to positively support the development of sustainability competencies (Nguyen, 2024). At the institutional level, universities are increasingly encouraged to align their strategic plans with the SDGs; however, sustainability initiatives often remain concentrated in policy documents rather than being systematically embedded in curricula and classroom practices (Le & Nguyen, 2023).

Within English language education, ESD remains particularly underexplored. English curricula in Vietnam continue to prioritize linguistic proficiency and examination outcomes, leaving limited space for broader educational goals such as sustainability competencies. As a result, sustainability themes are rarely integrated systematically into EFL teaching and learning. Recent research indicates that, despite increasing policy attention to sustainable development, practical implementation within EFL teacher education and language classrooms remains limited (Ngo & Hoang, 2025). These challenges highlight the need for pedagogical approaches that can meaningfully integrate sustainability content while maintaining language-learning objectives.

Several learner-centred pedagogies have been proposed to support ESD, including project-based learning (PBL), inquiry-based learning (IBL), and Content and Language Integrated Learning (CLIL) (Dhanyamol & Sethunarayanan, 2025; Kioupi & Voulvoulis, 2019). While these approaches have demonstrated value in promoting critical thinking and sustainability awareness, they often require substantial curricular restructuring, extensive teacher expertise, or dedicated content instruction. This study advances TBLT as a particularly suitable framework for EFL contexts where language development remains the primary instructional goal. TBLT organizes learning around authentic, goal-oriented tasks that require learners to use language meaningfully to solve problems, negotiate meaning, and collaborate with others (Ellis, 2003; Willis & Willis, 2007). These characteristics closely mirror the participatory, action-oriented, and problem-solving principles that underpin ESD. Moreover, unlike CLIL, which typically requires subject-content expertise, or PBL and IBL, which often involve extended project cycles, TBLT can be integrated into existing language curricula through task design, making it particularly adaptable to resource-constrained and examination-oriented educational settings such as Vietnam.

Despite the conceptual alignment between ESD and TBLT, empirical research examining how sustainability-oriented tasks are implemented in EFL classrooms remains limited. Little is known about how TBLT functions as a

mediating pedagogical framework through which sustainability content and language-learning objectives can be pursued simultaneously. This study addresses these gaps by examining the integration of SDGs into an EFL course through TBLT at a Vietnamese university. Beyond evaluating participants' perceptions, the study contributes theoretically by exploring the pedagogical compatibility between ESD and TBLT and by identifying the mechanisms through which task-based sustainability instruction may foster sustainability consciousness while supporting language learning. By drawing on both teacher and student perspectives, the study provides context-sensitive evidence that extends current understanding of how ESD can be operationalized within EFL settings and offers a framework for adapting sustainability-oriented language education in similar higher education contexts.

The study is guided by the following research questions:

RQ1. What are teachers' and students' perceptions of the implementation of SDG-embedded TBLT in EFL classrooms?

RQ2. How do teachers and students perceive the effects of SDG-embedded TBLT on students' sustainability consciousness (knowledge, attitudes, and behaviours)?

RQ3. What benefits do teachers and students perceive SDG-embedded TBLT to offer for English language learning?

RQ4. What challenges do teachers and students perceive in the implementation of SDG-oriented TBLT?

2. Literature review

The study is guided by the ESD framework (UNESCO, 2017) to support the integration of SDG-oriented content into unit themes, alongside the theory of sustainability consciousness (Gericke et al., 2019), and task-based language teaching (Willis, 2012) to leverage sustainability content for language development. In addition, the Implementation Outcomes Framework (Proctor et al., 2011) is employed to evaluate the intervention.

2.1. ESD

This section reviews key strands of the literature on ESD, including its conceptual foundations, core competencies, pedagogical approaches, and current challenges, with particular attention to its relevance in language education contexts.

ESD is grounded in the concept of sustainable development, which is defined "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN, 2015, para. 1). This concept was formalized with the adoption of the 2030 Agenda for Sustainable Development, which introduced 17 SDGs to guide global efforts in addressing environmental, social, and economic challenges (UN, 2015). UNESCO identifies ESD as a key driver for achieving these goals by equipping learners with the knowledge, skills, values, and behaviours necessary for sustainable futures (UNESCO, 2017).

ESD adopts a holistic and transformative approach, integrating environmental, social, and economic dimensions (often conceptualized as People, Planet, and Profit). It emphasizes not only knowledge acquisition but also changes in attitudes and behaviours, promoting action-oriented and interdisciplinary learning (UNESCO, 2022). A widely adopted framework conceptualizes ESD outcomes across three domains—cognitive, affective, and behavioural—highlighting the need for holistic learner development (Gericke et al., 2019).

A key construct within ESD is sustainability consciousness (SC), defined as individuals' awareness of sustainability issues across knowingness, attitudes, and behaviours (Gericke et al., 2019). These dimensions are interconnected and reflect learners' understanding, values, and actions in relation to sustainability. The Sustainability Consciousness Questionnaire has been widely used to assess these dimensions in educational contexts.

Research highlights that effective ESD implementation requires integration across curriculum, pedagogy, teacher education, and assessment. In language education, embedding sustainability themes through authentic materials and real-world tasks can foster

both communicative competence and global citizenship (Rieckmann, 2019). Pedagogically, ESD favours learner-centred and experiential approaches such as problem-based learning (PBL), inquiry-based learning (IBL), and content-based instruction, which promote critical thinking, collaboration, and engagement with real-world issues (Savery, 2015).

However, implementing ESD in language education remains challenging. Common barriers include limited institutional support, lack of teaching resources, and insufficient teacher preparation, particularly in exam-oriented EFL contexts (Kioupi & Voulvoulis, 2019; Rudenko, 2023). These challenges highlight the need for practical and contextually adaptable pedagogical approaches to effectively integrate sustainability into language teaching.

2.2. TBLT

TBLT is a communicative approach that organizes instruction around meaning-focused tasks with real-world outcomes (Ellis, 2003; Willis, 2012). Willis (2012) defined task as an activity where the target language is used by the learner for a communicative purpose (goal) in order to achieve an outcome. Willis (2012) also categorizes tasks into several task types, each supporting different communicative purposes and cognitive processes:

Listing tasks: involve brainstorming or fact-finding (e.g., generating ideas about environmental problems).

Ordering and sorting tasks: require learners to sequence, rank, or categorize information.

Comparing tasks: include matching, identifying similarities and differences.

Problem-solving tasks: engage learners in reasoning and decision-making to reach a solution.

Sharing personal experiences: include narrating, describing, exploring and explaining attitudes, opinions, and reactions.

Creative tasks: involve projects, presentations, or producing original outputs, often integrating multiple skills.

These task types vary in cognitive complexity and interactional demands but all maintain a focus on meaning and authentic communication. Importantly, Willis highlights that tasks should be goal-oriented, relevant, and engaging, enabling learners to use language as a tool for achieving outcomes rather than as an end in itself.

A central contribution of Willis (2012) is the task-based framework, which consists of three main phases:

(1) Pre-task phase: introduces the topic and task, activates prior knowledge, and may provide useful language input.

(2) Task cycle: includes task performance (in pairs/groups), planning, and reporting, where learners use language freely to complete the task and share outcomes.

(3) Language focus: involves analysis and practice of linguistic features that emerged during the task, allowing attention to form after meaning-focused use.

This framework reflects a balance between fluency and accuracy, encouraging spontaneous language use while still providing opportunities for form-focused instruction. Given its emphasis on problem-solving, collaboration, and authentic communication, TBLT aligns closely with ESD's goals of fostering critical thinking and action-oriented learning.

2.3. Implementation outcomes framework (Proctor et al., 2011)

The study is informed by implementation science, which examines how innovations are adopted, implemented, and sustained in practice. This implementation evaluation draws particularly on the Implementation Outcomes Framework (Proctor et al., 2011). This framework identifies eight outcomes that determine the success of implementing innovations:

Acceptability: Perceived agreeableness or satisfaction with the innovation

Adoption: Intention or decision to use the innovation

Appropriateness: Perceived relevance, fit or compatibility with the context or needs

Feasibility: Perceived practicality of implementation in real-world conditions

Fidelity: Extent to which the innovation is implemented as intended

Implementation Cost: Resources and financial cost required

Penetration: Degree of integration within the organization or system

Sustainability: Long-term maintenance of the innovation in routine practice

This framework provides a comprehensive conceptualization of implementation outcomes. This study employs these eight constructs to build evaluative open-ended questions for the questionnaires and semi-structures interviews with teachers and students.

In summary, the literature suggests that TBLT has strong potential to serve as a practical and scalable approach for embedding SDGs into EFL classrooms. Its structured task cycle and focus on communication provide a clear pedagogical framework for integrating sustainability topics without requiring major curricular restructuring. However, despite strong theoretical alignment, there remains a notable gap in the literature regarding the use of TBLT as a framework for integrating SDGs into EFL. In particular, there is limited empirical evidence on how such integration is implemented in practice and how it is perceived by key stakeholders. Addressing this gap is essential for developing contextually appropriate and pedagogically effective models for embedding sustainability into language education.

3. Methodology

3.1. Research design

This study employed a qualitative research design to investigate teachers' and students' perceptions of integrating SDGs into EFL instruction through TBLT. The study aimed to explore participants' perceptions and experiences rather than quantify outcomes or test statistical relationships; therefore, a qualitative approach was selected to generate in-depth insights into participants' experiences, perceptions, and interpretations of the intervention. Data were collected through open-ended questionnaire items, semi-structured focus group interviews, teaching diaries, and classroom observations, enabling triangulation across multiple sources.

3.2. Research context

The study was conducted at a public multidisciplinary university in Vietnam, where institutional policies emphasize sustainable development and promote the integration of ESD across disciplines. The intervention was embedded within a twelve-week general English course comprising six instructional units, each incorporating one ESD-focused lesson. The course book is Business Partner B1 (O'Keeffe et al., 2020). Specifically, one section of each unit was redesigned to integrate an SDG aligned with the unit topic (e.g., climate action, responsible consumption, quality education) through task-based activities. The course was structured following a TBLT framework adapted from Willis (2012), consisting of pre-task, task cycle, and language focus stages.

3.3. Participants

The participants comprised six EFL teachers and nine classes totalling 378 first-year undergraduate students. The teachers had between five and thirty years of teaching experience and were responsible for implementing the SDG-oriented TBLT lessons in one or two classes, depending on their availability. The student participants, drawn from a range of academic majors, had English proficiency levels spanning from pre-intermediate to intermediate. A total of 346 students completed the questionnaire, yielding a high response rate of 92%.

A purposive sampling strategy was employed for the selection of teacher participants, as they were directly involved in the intervention. The participating teachers were required to have a minimum of five years of teaching experience and demonstrate an interest in ESD. Student participants were included based on their enrolment in the course, ensuring a large and representative sample of the target population. For the focus group interviews, 27 students were purposively selected from the nine intervention classes (three per class) to ensure representation across academic disciplines and English proficiency levels, thereby capturing a diverse range of perspectives.

Tables 1 and 2 present the demographic characteristics of the teacher and student participants, respectively.

Table 1. Demographic characteristics of teacher participants

Category	Subcategory	n
Gender	Male	0
	Female	6
Years of Experience	5-10 years	2
	> 10 years	3
	> 20 years	1
Academic Qualification	M.A.	5
	Ph.D.	1
Total		6

Table 2. Demographic characteristics of student participants

Category	Subcategory	n	%
Gender	Male	95	27%
	Female	251	73%
Majors	Accountancy	62	18%
	Business Administration	59	17%
	International Business - Marketing	59	17%
	Finance	56	16%
	Tourism	45	13%
	Banking	40	12%
	Business Information Technology	25	7%
Age	18-19	319	92%
	20-21	27	8%
Total		346	100%

In addition, the SDG-embedded TBLT lesson plans were reviewed by five experts with recognized expertise in the fields of TBLT and ESD. Table 3 presents the demographic characteristics of the expert reviewers.

Table 3. Demographic characteristics of expert reviewers

Category	Subcategory	n
Gender	Male	2
	Female	3
Years of Experience	>20 years	5
Academic Qualification	Associate Professor	3
	Professor	2
Nationality	Vietnamese	2
	New Zealander	1
	Indonesian	1
	British	1
Total		5

3.4. Instructional intervention

The intervention involved the integration of SDGs into six course units through carefully designed task-based activities. In each unit, one task was adapted to embed a specific SDG and aligned with real-world sustainability issues, including problem-solving discussions, group projects, and presentations. These tasks were designed to promote meaningful communication while fostering sustainability consciousness across three dimensions: knowledge, attitudes, and behaviours. The first lesson provided an overview of all 17 SDGs to establish a foundational understanding.

Each SDG-embedded TBLT lesson lasted approximately 50 minutes. Following expert review by five specialists in TBLT and ESD, the lesson plans were revised and subsequently piloted in one class by the researcher to allow for further refinement. Prior to the intervention, participating teachers attended a two-hour training session that introduced instructional guidelines and sample materials. Throughout the course, teachers adapted and implemented the tasks according to their specific classroom contexts while adhering to the core principles of TBLT. They also maintained teaching diaries for each ESD lesson, documenting perceived strengths, challenges, adaptations, and recommendations.

Table 4 presents the SDG-embedded TBLT lesson procedure.

Table 5 presents an overview of the SDG-oriented TBLT lessons across the course.

3.5. Data collection

Data were collected from multiple sources to ensure methodological triangulation:

Open-ended questionnaires: Administered to both teachers and students at the end of the intervention to elicit perceptions of implementation, benefits, and challenges of SDG-embedded TBLT. The teacher questionnaire (see Appendix 1) comprised ten questions aligned with the Implementation Outcomes Framework (Proctor et al., 2011), covering acceptability,

Table 4. SDG-embedded TBLT lesson procedure

Stage	Phase	Description
Pre-task	Introduction and contextualization	Introduction of the target SDG with local contextualization.
	Vocabulary and knowledge input	Pre-teaching key vocabulary through activities such as matching and gap-filling, along with providing background knowledge via adapted video materials (e.g., YouTube).
Task Cycle	Task performance	Students engaged in meaning-focused, problem-solving, and creative tasks that foster cognitive, affective, and behavioural awareness.
	Planning and reporting	Students prepare and deliver group reports or presentations to the class
Post-task	Analysis and feedback	The teacher analyses students' performance and provides constructive feedback.
	Language practice	Form-focused activities are conducted to reinforce relevant vocabulary and grammatical structures.
	Reflection and wrap-up	Students reflect on key learning outcomes and takeaways from the lesson.

Table 5. Curricular mapping matrix for lesson implementation

Lesson	SDG focus	Sustainability consciousness	Task type	Learning outcomes	Assessment method
Unit 1: Career Choices	- Overview of 17 SDGs - SDG4 – Quality Education	Awareness of the Global Goals, personal responsibility, the role of education in sustainable career development	-Listing -Problem-solving	- Identify and explain the 17 SDGs. - Develop practical actions to contribute to sustainable development. - Explain the role of education in sustainable (career) development. - Propose practical strategies for developing transferable skills for sustainable career development. - Use topic-specific language accurately.	Oral reports

Lesson	SDG focus	Sustainability consciousness	Task type	Learning outcomes	Assessment method
Unit 2: Business Sectors	SDG 8 – Decent Work and Economic Growth	Awareness of the potential negative social and environmental impacts of unsustainable economic growth	- Problem-solving - Creative task	- Identify and explain SDG 8. - Propose possible solutions for achieving sustainable economic growth in Vietnam. - Use topic-specific language related to economic growth.	- Oral reports - Mind map
Unit 4: Global Market	SDG 17 – Partnerships for the Goals	Awareness of the necessity of partnership for achieving the Goals	- Case study - Problem-solving	- Identify and explain SDG 17. - Propose possible partnerships for sustainable solutions. - Use topic-specific language accurately.	Oral reports
Unit 5: Design and Innovation	SDG 9 – Industry, Innovation and Infrastructure	Awareness of the importance of innovation in achieving sustainable development	- Creative task	- Identify and explain SDG 9. - Generating possible innovative ideas to improve a business for sustainable development. - Use topic-specific language accurately.	Oral reports
Unit 7: Customer Service	SDG 12 – Responsible Consumption and Production	Awareness of practices that promote responsible consumption and production	- Problem-solving	- Identify and explain SDG 12. - Propose practices that promote responsible consumption and production for both individuals and businesses as well as ideas for improving customer service to encourage sustainable choices. - Use topic-specific language accurately.	Oral reports
Unit 8: Communication	SDG 16 –Peace, Justice and Strong Institutions	Awareness of the role of effective communication in promoting peace, justice, and strong institutions	- Problem-solving	- Identify and explain SDG 16. - Propose effective communication strategies in an organization. - Use topic-specific language accurately.	Oral reports

adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability, along with two additional items examining perceived impacts on sustainability consciousness and language development. For example, acceptability was examined through questions such as "How satisfied are you with integrating SDG-embedded TBLT into your English classes?", while fidelity was explored through items such as "To what extent were you able to follow the intended TBLT framework (pre-task, task cycle, language focus)?". The student questionnaire (see Appendix 5) included eight questions, comprising six items addressing implementation (excluding adoption and fidelity, which are not applicable to students) and two items on perceived learning outcomes.

Semi-structured interviews: Conducted with all six teachers and a sample of 27 students to gain in-depth insights into their experiences. The interview protocols for teachers and students (see Appendices 2 and 6, respectively) focused on implementation processes and perceived learning outcomes.

Classroom observations: Carried out during the intervention to document instructional practices, student engagement, and the enactment of TBLT principles. The researcher observed each class once during an ESD lesson. An observation protocol informed by the literature on TBLT, ESD, and implementation outcomes was used to guide data collection in a classroom observation form (see Appendix 3) with both check lists and field notes. Particular attention was given to teacher facilitation strategies, student participation and interaction, collaborative problem-solving, and use of sustainability-related content during task completion.

Teaching diaries: Maintained by teachers after each ESD lesson to record reflections on implementation, including strengths, challenges, adaptations, and recommendations (see Appendix 4). These diaries provided longitudinal, context-sensitive insights and complemented observational and interview data.

All instruments were reviewed by two EFL experts for content clarity and relevance. Feedback from the expert review was incorporated to refine item wording and improve content validity. The questionnaires and interview protocols were then piloted with one teacher and three students to ensure comprehensibility and procedural feasibility.

3.6. Data analysis

Data were analysed using Braun and Clarke's (2006, 2022) reflexive thematic analysis framework, which involves six phases: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Following repeated reading of the dataset, initial open codes were generated, guided by the eight constructs of Implementation Outcomes Framework (Proctor et al., 2011). The initial codes were then examined to identify subthemes and broader themes addressing the research questions. Themes were continuously reviewed against the dataset and triangulated across the four data sources to enhance trustworthiness. Representative excerpts were retained to ensure that themes remained grounded in participants' accounts. Teacher participants were coded as T1–T6, and student participants as S1–S27.

To ensure the rigor of the study, several strategies were employed. Triangulation of data sources (questionnaires, interviews, observations) enhanced the credibility of findings. Member checking was conducted by sharing summaries of interview data with participants for verification. Interviews were recorded with permission, and were then transcribed. Additionally, peer debriefing among the researchers helped to refine coding and interpretation.

3.7. Ethical considerations

Ethical approval was obtained from the university. Participants were informed about the purpose of the study and provided **informed consent** prior to participation. Anonymity and confidentiality were ensured. Participation was voluntary, and participants had the right to withdraw at any time without penalty.

4. Results

Guided by the Implementation Outcomes Framework (Proctor et al., 2011), data from open-ended questionnaires, interviews, classroom observations, and teaching diaries were analysed through the lens of eight implementation outcomes: acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability. The initial coding process generated 44 codes, which were iteratively refined and grouped into 19 subthemes and four overarching themes aligned with the research questions: (1) Positive Perceptions of SDG-Embedded TBLT, (2) Development of Sustainability Consciousness, (3) Language Learning Benefits, and (4) Implementation Challenges. Table 6 presents all the themes, subthemes, related implementation outcomes, initial codes with frequencies shown in parentheses, and illustrative extracts.

4.1. Positive perceptions of SDG-Embedded TBLT

Regarding *acceptability*, evidence from questionnaires, interviews, teaching diaries, and classroom observations indicated a high level of acceptability of SDG-embedded TBLT. Students consistently described the lessons as enjoyable, engaging, and different from conventional textbook-based instruction. Interactive tasks, authentic sustainability topics, and game-based activities were frequently cited as factors

Table 6. Coding overview

Theme	Subtheme	Related implementation outcome(s)	Initial code	Illustrative extract
Positive perceptions of SDG-embedded TBLT	Increased relevance and meaningfulness of learning	Appropriateness, Acceptability	meaningful learning (379) real-world relevance (379)	"The ESD lessons were a meaningful addition, offering something new and different from the repetitive textbook-based lesson cycles." "Discussing sustainability-related issues made English lessons more connected to real life."
	Engagement through interactive and authentic tasks	Acceptability, Appropriateness	enjoyable lessons (270) authentic topics (10) game-based learning (15) student engagement (272)	"I enjoyed the ESD lessons." "I liked discussing sustainability problems because they are important issues happening around the world."
	Enhanced participation and collaboration	Acceptability	active participation (177) increased collaboration (233) increased communication (233)	"I participated more actively in discussions." "The tasks made me work with my partners more."
	Teacher facilitation as a key factor	Fidelity, Feasibility	teacher support (379) effective lesson delivery (150) teacher enthusiasm (327)	"The teacher made the lessons easier to follow." "The teacher's teaching style helped the lessons interesting."

Theme	Subtheme	Related implementation outcome(s)	Initial code	Illustrative extract
Development of Sustainability Consciousness	Increased sustainability knowledge	Fidelity, Appropriateness	awareness of sustainability-related issues (379) understanding SDGs (379)	"I know more about sustainability, not only about environment."
	Development of pro-sustainability attitudes	Acceptability, Adoption	increased attitudes towards environmental protection (379) increased attitudes towards social responsibility (275) reflection on sustainability (190) increased concern for global issues (270)	"I felt that I have responsibility for sustainability development." "The lessons made me think more seriously about global issues."
	Adoption of sustainable behaviours	Adoption, Sustainability	behavioural change (327) reducing plastic use (327) energy saving (27) influencing peers (12) research on sustainable development (5)	"I now try to reduce plastic use." "We remind each other to save electricity and sort our trash."
Language Learning Benefits	Speaking development	Acceptability, Appropriateness	speaking confidence (109) speaking fluency (119) communication skills (122)	"The tasks provided opportunities for me to practice speaking English more confidently."
	Vocabulary development	Acceptability, Appropriateness	vocabulary acquisition (379)	"I learned many new words about sustainability."
	Improvement of other language skills	Acceptability	listening improvement (271) reading improvement (207) writing improvement (132)	"The videos helped me improve listening."
	Development of transversal competencies	Appropriateness	critical thinking (270) creativity (105) problem-solving (15) teamwork (330)	"Group tasks helped me think critically."

Theme	Subtheme	Related implementation outcome(s)	Initial code	Illustrative extract
Implementation Challenges	Time constraints	Feasibility, Implementation Cost	lack of time (323)	"The tasks took a lot of class time."
	Cognitive difficulty	Feasibility, Fidelity	limited ESD knowledge (233)	"It was difficult to for me to understand some sustainability concepts."
	Language barriers	Feasibility, Fidelity	lack of vocabulary (220)	"I don't have vocabulary to talk about the sustainability topics."
	Task difficulty	Feasibility, Fidelity	some difficult topics (12)	"Some group works were difficult for me."
	Lack of task variety	Acceptability	some repetitive tasks (15) similar task formats (15)	"Some discussion tasks are similar."
	Lack of interest in sustainability topics	Adoption, Penetration	preference for learning without ESD (2) lack of interest in sustainability topics (2)	"I am not interested in sustainability topics."
	Resource limitations	Implementation Cost, Feasibility, Sustainability	limited materials (137)	"I spent a lot of time reading more SDG materials."
	Teacher readiness	Adoption	need for training (6)	"I need more knowledge about sustainability topics."

contributing to their satisfaction. One student remarked: "The ESD lessons were a meaningful addition, offering something new and different from the repetitive textbook-based lesson cycles" (S7). The use of authentic topics was particularly appreciated: "I liked discussing sustainability problems because they are important issues happening around the world" (S6). Teachers similarly reported positive experiences with the intervention, noting increased student participation and enthusiasm during lessons. Teaching diary entries further documented positive student responses: "Most students participated actively and appeared enthusiastic throughout the lesson, especially during group discussions" (T3). Classroom observations confirmed these perceptions, documenting active participation, collaborative interactions, and sustained engagement throughout task cycles.

Regarding *appropriateness*, participants perceived SDG-embedded TBLT as highly relevant and compatible with both language learning objectives and contemporary societal needs. Student questionnaire responses emphasized the meaningfulness of discussing real-world sustainability issues through English. Many participants reported that the intervention connected classroom learning with everyday life and global challenges: "Discussing sustainability-related issues made English lessons more connected to real life" (S8) and "The topics helped me understand problems that I can see in my community" (S27). Teachers also considered the approach pedagogically appropriate because

the TBLT framework enabled the integration of sustainability content while maintaining a focus on communicative language use. Teaching diaries revealed that sustainability topics provided authentic contexts for language practice and facilitated the development of critical thinking, teamwork, and problem-solving skills. As one teacher remarked: "Students were able to relate the lesson topics to their daily lives and share personal experiences easily" (T6). The fact that students perceived increased sustainability knowledge and enhanced language skills further reinforced perceptions of appropriateness. Classroom observations showed students actively linking sustainability concepts to local and global issues during discussions, suggesting a strong perceived fit between the intervention and learners' needs.

Regarding *adoption*, evidence of adoption emerged in both attitudinal and behavioural domains. Students reported increased willingness to engage with sustainability-related issues and demonstrated stronger pro-sustainability attitudes. Questionnaire and interview data suggested that many participants had begun incorporating sustainability considerations into their daily lives. Many students indicated a stronger commitment to sustainability: "I felt that I have responsibility for sustainable development," (S7) or "The lessons made me think more seriously about global issues" (S10). Several students reported concrete behavioural changes, such as reducing plastic use, conserving energy, seeking additional information about sustainable development, and encouraging peers to adopt environmentally responsible practices: "I now try to reduce plastic use" (S11) and "We remind each other to save electricity and sort our trash" (S9). Others described extending their learning beyond the classroom: "After the lessons, I searched for more information about sustainable development on the Internet" (S10). Teachers also expressed a willingness to continue incorporating SDG-embedded content into future language lessons, although some highlighted the need for additional training and support to sustain implementation.

Regarding *feasibility*, participants provided mixed evaluations of the implementation of SDG-embedded TBLT. On the positive side, classroom observations and teaching diaries indicated that the intervention could be implemented successfully within regular EFL classes. Teachers generally managed to integrate sustainability topics into communicative tasks and reported positive student responses. Teaching diaries further noted that most planned activities could be completed as intended. As one teacher noted, "Students adapted quickly to the task cycle and became more comfortable with collaborative activities over time" (T5). These findings indicate that SDG-embedded TBLT is a feasible approach for EFL instruction. However, participants also identified several challenges that affected its implementation. These challenges are discussed in Section 4.4.

Regarding *fidelity*, data from classroom observations and teaching diaries suggested that the intervention was implemented largely as intended. Teachers reported adhering closely to the planned task sequence of pre-task, task cycle, and post-task activities. As one teacher noted, "The lesson structure helped students move naturally from preparation to discussion and presentation" (T2). Overall, both teachers and students perceived the three-stage SDG-embedded TBLT procedure as logical, engaging, and supportive of both language learning and sustainability education. Teachers regarded the framework as pedagogically valuable, noting that it provided a clear structure for integrating SDG content while maintaining a strong focus on communicative language use.

With respect to the *pre-task phase*, teachers appreciated the introduction and contextualization of sustainability issues at the beginning of each lesson. They reported that connecting global SDG themes to local contexts helped students recognize the relevance of the topics and increased their motivation to participate in subsequent activities. Teachers also viewed pre-task activities as effective in activating learners' prior knowledge and preparing them for task completion.

Students similarly valued the pre-task phase, particularly the use of videos and vocabulary-building activities. These activities helped them understand key sustainability concepts and provided the linguistic resources needed to engage in discussions and tasks. One student commented, *"The videos helped me understand the issue before doing the task"* (S12), while another noted, *"I learned new vocabulary which helped me understand the video and discuss the topic later"* (S127).

Regarding the *task cycle*, teachers observed particularly high levels of engagement when tasks were closely connected to students' daily lives or the Vietnamese context. Students likewise emphasized the relevance and authenticity of the activities. As one student explained, *"I like the SDG-embedded tasks because I felt that my ideas were connected to real life"* (S7). Many participants reported enjoying the problem-solving and creative tasks, which enabled them to express their opinions, exchange ideas, and learn from their peers. Teachers further noted that collaborative discussions promoted active participation and encouraged critical reflection on sustainability issues.

The *post-task phase* was also viewed positively by both teachers and students. Teachers valued the opportunity to provide feedback on both language use and task content, helping students identify strengths and areas for improvement. Students reported that follow-up language practice activities reinforced newly learned vocabulary and expressions, facilitating the retention and application of language related to sustainability topics. The reflection and wrap-up activities were also appreciated for promoting deeper engagement with sustainability issues and consolidating key learning points. Some students indicated that these activities encouraged them to reconsider their daily habits and adopt more sustainable behaviours. As one student remarked, *"The reflection part made me think about what I can do in my daily life to help the environment, not just what I learned in English"* (S21).

Overall, the findings suggest a high level of implementation fidelity. The integration of contextualized input, communicative tasks, collaborative interaction, feedback, language-focused activities, and reflection created a coherent instructional sequence that was delivered largely as designed and was perceived as effective in supporting both language development and sustainability learning.

Regarding *implementation cost*, this construct emerged primarily from teacher data. Teaching diaries and interviews revealed that teachers invested considerable time in adapting SDG-embedded activities to provide scaffolding for students. Several teachers reported spending additional preparation time because of the limited availability of ready-made resources: "I spent a lot of time reading more SDG materials before teaching" (S1, S3, S5). Although no substantial financial costs were reported, the intervention required significant investments of teacher effort and preparation.

Regarding *penetration*, the findings indicate that SDG-embedded TBLT was successfully incorporated into the participating EFL courses. Teacher interviews indicated growing acceptance of SDG integration within participating classes and recognition of its educational value. Teacher interviews indicated increasing acceptance of SDG integration within the classroom and recognition of its pedagogical value. Teachers reported that sustainability themes could be incorporated effectively into existing course content and communicative activities. As one teacher explained, "The SDG topics fitted well with our communicative teaching approach and could be incorporated into different units" (T5). Students likewise responded positively to the inclusion of sustainability topics in English lessons and expressed support for broader adoption of the approach. For example, one student commented, "I think more English courses should include sustainability topics" (S25). These findings suggest that SDG-embedded TBLT was well received by both teachers and students and demonstrated strong potential for integration within the broader EFL curriculum.

Regarding *sustainability*, participants generally viewed SDG-embedded TBLT as having strong potential for long-term continuation and impact. Students' reported behavioural

changes and sustained interest in sustainability issues suggest impacts extending beyond the intervention period. Several students reported applying what they had learned to their daily lives and maintaining an interest in sustainability after the lessons had ended. As one student reflected, "I continue to think about environmental issues even after the lesson…The lessons changed some of my daily habits, for example, I now bring my own water bottle and my own bag when going to the supermarket" (S3). Teachers likewise expressed a willingness to continue implementing SDG-related tasks due to their perceived value for both language learning and sustainability education. One teacher commented, "I would like to continue using SDG-related tasks because they support both language learning and students' awareness of social issues" (S4). These findings suggest that SDG-embedded TBLT is not only sustainable as a pedagogical approach but also capable of fostering enduring learning outcomes and behavioural change among students.

4.2. Perceived effects on sustainability consciousness

Participants consistently reported that the intervention contributed to enhancing students' **sustainability consciousness** across three dimensions: knowledge, attitudes, and behaviours. Findings from dataset indicated that engagement with SDG-related tasks promoted greater awareness of sustainability issues, fostered positive attitudes toward sustainable development, and encouraged sustainable practices in everyday life.

Knowledge (Knowingness).

Students demonstrated increased awareness and understanding of sustainability issues. They reported learning new concepts related to environmental protection, social responsibility, and sustainable lifestyles. For example, one student stated: "I know more about sustainability, not only about the environment but also about social and economic issues" (S21). Another student commented: "Before this course, I only knew a little about sustainable development. Now I understand the Sustainable Development Goals and why they are important" (S18).

Teachers similarly observed improvements in students' sustainability knowledge. One teacher noted: "Students became more familiar with sustainability concepts and were able to explain them using appropriate English vocabulary" (T5). Teaching diary entries further indicated that students increasingly incorporated sustainability-related terminology into discussions and presentations.

Attitudes.

Many students expressed heightened concern for global issues and a stronger sense of responsibility toward sustainability. One student reflected: "The lessons made me think more seriously about global issues and how my actions can affect the environment" (S3). Interview data revealed that students became more reflective about their own values and the impact of their actions on the environment and society. As one student noted: "After discussing sustainability topics, I started paying more attention to environmental problems around me" (S10). The findings suggest that the intervention fostered not only cognitive understanding but also emotional engagement with sustainability-related concerns.

Behaviour.

Some students reported changes in their daily practices, suggesting a shift from awareness to action. For example, as noted by S3, she reduced her use of plastic by bringing her own water bottle and reusable bag instead of relying on disposable plastic products. Other students reported adopting sustainable habits such as saving electricity and sorting waste, as illustrated by S9. A few participants also indicated that their engagement extended beyond the classroom. As S23 explained, *"After the lessons, I searched for more information about sustainable development because I wanted to learn more."* Teachers likewise observed signs of behavioural change. One teacher remarked, *"Several students shared examples of how they were applying sustainable practices in their daily lives and encouraging their friends to do the same"* (T3). Although these behavioural changes were self-reported, the findings suggest that the intervention encouraged students to translate sustainability awareness into concrete actions and sustained engagement with sustainability-related issues.

Overall, the findings indicate that SDG-oriented TBLT not only increased students' cognitive understanding but also fostered affective and behavioural engagement with sustainability issues. The convergence of evidence across questionnaires, interviews, teaching diaries, and classroom observations suggests that the intervention contributed positively to the development of sustainability consciousness among participating students.

4.3. Perceived benefits for English language learning

Both teachers and students identified a range of language learning benefits associated with the intervention. Data from questionnaires, interviews, teaching diaries, and classroom observations indicated that SDG-oriented TBLT supported the development of speaking skills, vocabulary knowledge, other language skills, and various transversal competencies.

The most frequently reported benefits were vocabulary and speaking improvement. Students noted that task-based activities created meaningful opportunities for communication. One student explained, "The tasks provided opportunities for me to practice speaking English more confidently" (S7). Another reported greater fluency: "Because we had to discuss solutions to real-world problems, I had more chances to practice speaking and became more fluent over time" (S24). Teachers similarly observed progress in students' oral communication skills. As one teacher noted, "Students became more willing to speak and participate in discussions" (T4). Classroom observations further supported these perceptions, showing frequent student interaction and active participation during task cycles.

Participants also consistently highlighted gains in sustainability-related vocabulary. One student stated, "I learned many new words about sustainability" (S1), while another reported being able to apply newly acquired vocabulary in communicative tasks: "I could use the new words when presenting solutions to sustainability problems" (S6). Teachers confirmed these observations. As one teacher remarked, "Students could use more sustainability-related terms over time" (T6).

Although speaking emerged as the most prominent outcome, participants also reported improvements in other language skills. For example, one student noted, "The videos helped me improve listening" (S5). Another commented, "Reading materials about sustainability helped me improve reading skills and learn new information at the same time" (S7). Regarding writing, a participant explained, "Writing about sustainability topics helped me organize my ideas and express them more clearly in English" (S19).

Beyond language development, students reported gains in several transversal competencies. Many highlighted enhanced critical thinking through engagement with real-world sustainability issues. As one student stated, "Group tasks helped me think critically about real-world problems" (S2), while another observed, "The activities encouraged me to think creatively to solve problems" (S3). Students also emphasized the development of teamwork and collaboration skills. For instance, one participant noted, "Working in groups helped me learn how to cooperate with others and share responsibilities" (S7). Teachers likewise observed that collaborative tasks fostered communication, teamwork, and problem-solving abilities. One teacher commented, "Students not only practiced English but also learned how to work together to propose solutions to sustainability issues" (T1). Classroom observations corroborated these findings, showing students actively exchanging ideas, negotiating solutions, and collaboratively completing tasks.

Overall, the findings suggest that SDG-oriented TBLT contributed to both language development and the acquisition of broader competencies. While improvements in speaking skills and vocabulary knowledge were the most frequently reported outcomes, participants also perceived gains in listening, reading, and writing, as well as in critical thinking, creativity, problem-solving, and teamwork.

4.4. Implementation challenges

Despite the generally positive perceptions

of SDG-embedded TBLT, both teachers and students identified several challenges related to time constraints, limited resources, teacher readiness, students' cognitive and linguistic demands, and task design when engaging with sustainability-related content.

Time constraints. Time was the most frequently reported challenge. Teachers indicated that task-based activities, particularly group discussions, collaborative problem-solving, and presentations, often required more time than was available within a typical lesson. Teaching diary entries similarly highlighted the difficulty of balancing language objectives, sustainability content, and task completion within limited class time. As one teacher noted, "Students were highly engaged, but some activities had to be shortened because of time limitations" (T6). Classroom observations further confirmed that students often needed additional time for discussion, negotiation, and presentation, especially when addressing complex sustainability issues. These findings suggest that implementing SDG-oriented tasks may require greater scheduling flexibility or adjustments to lesson pacing.

Limited resources. Teachers also reported challenges in accessing suitable materials for integrating SDGs into English language teaching. One teacher commented, "I spent a lot of time reading more SDG materials before teaching" (T1). Teaching diary reflections indicated that considerable effort was required to locate, evaluate, and adapt authentic sustainability-related resources for students' language proficiency levels and learning needs. These findings suggest that the availability of high-quality, curriculum-aligned teaching materials remains an important consideration for the wider adoption of SDG-embedded TBLT.

Teacher readiness. Several teachers acknowledged that integrating ESD into language teaching required knowledge and skills beyond those typically associated with English language instruction. As one teacher explained, "Teaching sustainability issues requires interdisciplinary knowledge that many English teachers have not been formally trained to teach" (T1). Another teacher emphasized, "More training would make it easier to continue implementing this approach" (T5). Teaching diary reflections reinforced this concern, with one teacher noting that "Institutional support and access to resources will be important if SDG-embedded TBLT is to become a regular part of the curriculum" (T1). These findings highlight the importance of targeted professional development and institutional support for teachers implementing SDG-oriented instruction.

Student challenges. Students reported several difficulties associated with the cognitive and linguistic demands of sustainability-related topics. Some participants found it challenging to discuss sustainability issues because they lacked sufficient background knowledge and topic-specific vocabulary. As one student explained, *"I don't have enough vocabulary to talk about sustainability topics"* (S4). To address these difficulties, both teachers and students suggested providing vocabulary lists before each lesson so that learners could familiarize themselves with key terms and participate more confidently in discussions. Teachers also reported adapting tasks and providing additional scaffolding, such as vocabulary support, guiding questions, and examples, to facilitate students' engagement with the content.

In addition, a small number of students expressed limited interest in sustainability issues and preferred English lessons that focused primarily on language learning. For example, one student stated, *"I am not interested in sustainability topics."* These findings suggest that students vary in their readiness and motivation to engage with sustainability-related content. Nevertheless, many students emphasized the important role of the teacher in making sustainability topics accessible and engaging. They noted that clear explanations, relevant examples, and effective facilitation helped them better understand complex issues and maintain interest in the lessons. This highlights the significance of teacher support in mediating the cognitive demands of SDG-oriented learning and fostering student engagement.

Task-related challenges. Some students reported that SDG-embedded tasks were

demanding because they required simultaneous processing of content knowledge and language. One participant commented, "I sometimes found it difficult because I had to process the knowledge and the English vocabulary at the same time" (S11). Challenges were also identified with specific task types. Although videos were generally well received, some students perceived some of them as too long, and teachers likewise suggested that videos should ideally be limited to three minutes or less to maintain engagement. In addition, a few students noted that certain activities became repetitive over time. As one student remarked, "Some discussion tasks are similar" (S9). These findings indicate the importance of carefully balancing cognitive demands and ensuring sufficient variety in task design to sustain student engagement.

Overall, the results suggest that integrating SDGs into EFL through TBLT is both feasible and beneficial. The approach was positively received by teachers and students, enhanced students' sustainability consciousness across multiple dimensions, and supported the development of key language skills, especially speaking and vocabulary. At the same time, the findings highlight important practical challenges that need to be addressed to ensure effective and sustainable implementation. These findings provide empirical support for the pedagogical potential of SDG-oriented TBLT in higher education EFL contexts.

5. Discussions

This study set out to examine teachers' and students' perceptions of integrating SDGs into EFL through TBLT, with particular attention to its perceived impact on sustainability consciousness and language learning. The findings provide compelling evidence that SDG-oriented TBLT is both pedagogically effective and contextually feasible, while also revealing important challenges that inform future implementation.

Value of ESD-embedded TBLT

One of the key contributions of this study lies in demonstrating how SDG-oriented TBLT can operationalize the goals of ESD within EFL classrooms. While previous research has highlighted a persistent gap between global sustainability frameworks and classroom practices, the present findings suggest that TBLT offers a practical mechanism for embedding sustainability into language instruction in a structured and meaningful way. The positive perceptions reported by both teachers and students indicate that TBLT successfully facilitated the integration of SDG content without compromising language learning objectives. This aligns with Ellis (2003) and Willis (2012), who argue that task-based approaches enable authentic language use through meaningful communication. By situating language learning within real-world sustainability contexts, the intervention addressed calls for more contextualized and interdisciplinary approaches to ESD (Sterling, 2016).

The findings of this study resonate with research on project-based learning (PBL), inquiry-based learning (IBL), and Content and Language Integrated Learning (CLIL), all of which emphasize learner-centred, authentic, and interdisciplinary learning. Similar to PBL and IBL, SDG-oriented TBLT engaged students in problem-solving and real-world issues, fostering active participation and deeper learning. However, compared to PBL, which often requires extended timeframes and complex project structures, TBLT offers a more flexible and scalable approach that can be integrated into existing curricula without substantial restructuring. This makes TBLT particularly suitable for contexts such as Vietnamese higher education, where curricular constraints and exam pressures may limit the adoption of more resource-intensive approaches.

Thus, this study positions TBLT as a practical alternative for embedding ESD in EFL, complementing existing pedagogical models while addressing contextual limitations.

Development of sustainability consciousness

The findings reveal that SDG-oriented TBLT contributed to the development of students' sustainability consciousness across the cognitive (knowledge), affective (attitudes), and behavioural dimensions. This supports the multidimensional framework proposed by Gericke et al. (2019), suggesting that pedagogical interventions can

influence not only what students know about sustainability but also how they feel and act. In particular, the reported increase in students' awareness of sustainability issues reflects the effectiveness of integrating content-rich, real-world topics into language tasks. The attitudinal shifts observed in students further indicate that engaging with authentic global challenges can foster a sense of responsibility and ethical awareness, consistent with the transformative aims of ESD (Wals, 2011). Although behavioural changes were primarily self-reported, they nonetheless suggest a movement toward action-oriented learning, which is a central goal of sustainability education.

Language learning benefits of SDG-oriented TBLT

Consistent with previous studies on TBLT (Ellis, 2003; Long, 2015), the results indicate significant perceived benefits for language development, particularly in speaking skills and vocabulary acquisition. The emphasis on interaction and communication within task cycles created opportunities for students to use language authentically, thereby enhancing fluency and confidence. The integration of SDG topics also enriched the content dimension of language learning, providing students with relevant and meaningful contexts for communication. This supports findings from CLIL and content-based instruction research, which highlight the advantages of combining language and content learning (Coyle et al., 2010). Moreover, the reported development of transversal competencies such as critical thinking, creativity, and teamwork reflects the added value of integrating ESD into language teaching, extending learning outcomes beyond linguistic proficiency.

Implementation challenges and contextual constraints

Despite the overall positive outcomes, the study also highlights several challenges that are consistent with prior research. Time constraints emerged as a major issue, reflecting the difficulty of implementing communicative, task-based activities within limited instructional periods. This aligns with previous studies that identify time and curriculum constraints as barriers to TBLT adoption in EFL contexts.

The lack of ready-made materials and limited teacher preparedness further underscore the need for institutional support and professional development. Integrating SDGs into ELT requires not only pedagogical knowledge of TBLT but also an understanding of sustainability concepts, which many teachers may not have been formally trained in. This finding echoes previous findings that emphasize the importance of teacher training in successful ESD implementation (Dhanyamol & Sethunarayanan, 2025; Kioupi & Voulvoulis, 2019).

Additionally, students' difficulties in expressing complex sustainability concepts in English highlight the importance of scaffolding and language support, particularly for learners with lower proficiency levels. However, these challenges can also be seen as opportunities for learning, as they push students to expand their linguistic and cognitive capacities. Furthermore, isolated comments expressing low interest in sustainability topics suggest that integration had not yet been universally embraced.

While SDG-embedded TBLT was generally perceived as a feasible and valuable pedagogical approach, its successful implementation depends on addressing several practical challenges related to time constraints, resource availability, teacher preparedness, student readiness, and task design. The findings suggest that effective implementation requires careful task planning, appropriate scaffolding for both language and content learning, access to high-quality teaching materials, and ongoing professional support for teachers. These considerations indicate that the long-term sustainability and wider adoption of SDG-embedded TBLT would benefit from systematic support at both the program and institutional levels, including curriculum development, resource provision, and professional development opportunities.

Implications for theory and practice

Although critics have argued that ESD remains conceptually ambiguous and that evidence of its educational benefits is still limited, the findings of this study offer several important theoretical and practical implications.

From a theoretical perspective, the study contributes to the growing body of research at the intersection of ESD and language education. While previous studies have predominantly examined the integration of ESD through approaches such as PBL and IBL, this study extends the literature by demonstrating the potential of TBLT as a pedagogical framework for integrating sustainability education into EFL instruction. The findings suggest that TBLT provides a mechanism through which language learning and sustainability learning can mutually reinforce one another. More specifically, the study points to a possible pathway through which sustainability-related communicative tasks contribute to the development of students' sustainability consciousness via the three-stage TBLT procedure and its constituent elements: *pre-task activities* (introduction and contextualization, vocabulary and knowledge input), *task cycle activities* (task performance, planning and reporting), and *post-task activities* (analysis and feedback, language practice, reflection and wrap-up). By illustrating how communicative engagement with sustainability issues can foster both language development and sustainability consciousness, the study provides empirical support for the relevance of TBLT in multidisciplinary educational contexts and highlights the potential of language classrooms as sites for transformative learning.

From a practical and implementation perspective, the findings indicate that SDG-oriented TBLT is generally acceptable, appropriate, and feasible within higher education EFL contexts. However, its successful and sustained implementation requires systematic support at multiple levels. The identified challenges suggest that the benefits of SDG-oriented TBLT are not automatic but are shaped by contextual factors, including learner readiness, task design, teacher expertise, resource availability, and institutional support. Curriculum designers should therefore ensure that sustainability topics are carefully selected and aligned with learners' language proficiency levels, interests, and prior knowledge. To reduce cognitive overload and enhance participation, tasks should be scaffolded progressively and varied in format to maintain student engagement. In addition, institutions should provide access to high-quality teaching materials and professional development opportunities that strengthen teachers' knowledge of sustainability issues as well as their capacity to design and facilitate SDG-oriented task-based instruction.

The findings also underscore the importance of viewing implementation challenges as an integral component of educational innovation rather than as peripheral concerns. The tensions reported by participants—between meaningful learning and limited instructional time, between authentic sustainability content and linguistic complexity, and between ambitious sustainability goals and teacher preparedness—reflect the realities of integrating ESD into language education. Addressing these tensions is essential for moving beyond isolated classroom initiatives toward sustainable, scalable, and institutionally embedded practices. Furthermore, the study highlights the pivotal role of teachers in the implementation process. Students consistently emphasized that teacher facilitation, scaffolding, and enthusiasm were critical in making sustainability topics accessible, engaging, and meaningful. This suggests that teachers serve not only as language instructors but also as key mediators of sustainability learning, whose expertise and support significantly influence the success of SDG-oriented TBLT.

6. Conclusions

This study investigated teachers' and students' perceptions of embedding SDGs into EFL through TBLT in a university context. The findings demonstrate that SDG-oriented TBLT is a feasible, meaningful, and pedagogically effective approach for integrating ESD into language education.

First, the study confirms that both teachers and students highly value the integration of sustainability topics into EFL instruction. The use of authentic, real-world issues enhanced learner engagement and made language learning more relevant and purposeful. Second, the findings provide evidence that SDG-oriented

TBLT contributes to the development of students' sustainability consciousness across knowledge, attitudes, and behaviours, supporting its role as a transformative educational approach. Third, the approach was perceived to enhance language development, particularly in speaking skills and topic-specific vocabulary, while also fostering important transversal competencies such as critical thinking, creativity, and teamwork. Importantly, the study highlights that integrating sustainability into language education creates a synergistic effect that enhances both sustainability learning and language proficiency. However, the findings also reveal several implementation challenges, including time constraints, limited instructional resources, and the need for greater teacher preparedness. These challenges underscore the importance of systemic and institutional support for effective integration.

Overall, this study contributes to the growing body of research on ESD in language education by demonstrating that TBLT can serve as a practical and scalable pedagogical framework for embedding SDGs in EFL contexts, particularly in higher education. Despite its contributions, this study has several limitations. First, the findings are based primarily on participants' perceptions and self-reported experiences rather than objective measures of learning outcomes or behavioural change. Second, the study was conducted within a single institutional context, which may limit the transferability of the findings to other educational settings. Future research should employ longitudinal, quantitative, or experimental designs to examine the effects of SDG-oriented TBLT on both language learning and sustainability-related outcomes. Further studies could also develop assessment tools capable of capturing both linguistic development and sustainability consciousness. Such research would contribute to a more comprehensive understanding of how language education can support the goals of sustainable development.

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