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ECO-LITERATE AND MOTIVATED: TERTIARY EFL LEARNERS' MOTIVATION AND ENGAGEMENT IN CLIL LEARNING WITH ECOLOGICAL CITIZENSHIP

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Abstract
Grounded in the philosophy of Content and Language Integrated Learning (CLIL), this study examines Ecological Citizenship Pedagogy (ECP) as a promising framework for reorienting the educational goals in tertiary English classes toward socially and environmentally responsible learning. Despite this recognition, many students report limited motivation and suboptimal engagement in English classes, perceived to be disconnected from their disciplinary and professional development. Anchored in humanity- and science-oriented pedagogy, this study investigates how ECP fosters students' motivation and engagement in ecological literacy and English language learning through shared inquiry, exploring how ECP influences first-year students' motivation and attitudes toward integrated English and ecology learning and how they perceive their experiences through SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. This study employed Sagor's (2005) Collaborative Action Research (CAR) model and Hadjichambis et al.'s (2020) instructional framework. The findings grounded in the questionnaire and post-course SWOT reflection by students reveal that ECP enhances motivation and ecological literacy embodied in students' sustained engagement in collaborative inquiries on ecological issues through the mediation of multimodal resources. While motivational gains were observed, the study underscored the need for careful interpretation of the results, particularly regarding their impact on language and ecological competencies. The research highlights the importance of tailored support, multisemiotic resources, and collaborative lessons to create a democratic learning environment that nurtures reflective, socially responsible learners.

Keywords: CLIL, ecological citizenship pedagogy, motivation, tertiary education

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Introduction

Bridging the classroom with the community and building democratic communities through civic actions have yet to receive adequate emphasis in CLIL research. Even though Coyle (2007) two decades ago recommended global citizenship as a potential framework to refine CLIL instruction, this area of research remains peripheral. This area generally delves into students' and teachers' views on CLIL instruction with intercultural citizenship (see Porto, 2021, 2018; Porto & Byram, 2015; Rauschert & Byram, 2018). This narrowed scope hardly sheds light on subject pedagogy integration into English language classes, as in the case of intercultural education (see Porto, 2021). This blind spot can otherwise help to expand CLIL beyond its conservative framing in language pedagogy.

Moreover, such a narrowed focus raises skepticism as to whether CLIL instructions lead to learning gains that are in concert with essential skills in respective subject disciplines. From the empirical vantage point, the current scholarship on CLIL with educational orientation has only examined its application and emerging perspectives of students and teachers (Bárcena-Toyos, 2020; Fitrawati et al., 2023; Garzón-Díaz, 2021; Prasandha & Aniq, 2023; Villabona & Cenoz, 2022). These studies lack a thorough examination of the learning process within the CLIL context. A deeper investigation into these processes will allow a fine-cut understanding of the CLIL approach, especially in view of findings that emphasize the essentials of class interactions, i.e., student-teacher, student-student, and student-learning materials. This line of inquiry lends itself to revealing cognitive and affective dynamics that determine how knowledge and skills are co-constructed in a cross-disciplinary setting (Imamyartha et al., 2024).

To transcend CLIL's current empirical boundaries, ecological citizenship pedagogy (henceforth ECP) offers a promising framework for investigating how learners interact with both linguistic and disciplinary knowledge. ECP integrates peer-led projects as a manifestation of student-centered learning in which students collaborate to address authentic ecological issues (Hadjichambis et al., 2020). Although ECP can help to build a meaningful integration of content and language (Porto, 2021), the current discussion on CLIL still overlooks this concern. Citizenship pedagogy is devoted to preparing youths to address contemporary issues such as poverty, moral crises, and environmental degradation through critical reflection and collaboration (Ardoin et al., 2022; Hadjichambis et al., 2020; Olsen et al., 2020). This direction engages content, communication, culture, and cognition, constituting elements of CLIL's 4Cs approach. In that respect, the focus on cultural and social practices that are inherent in a language class can be a driving force to allow such integration to thrive. Through critical reflection and awareness-raising activities, language classes can nurture students' awareness and understanding of the evolving issues around them as well as their roles in solving them (Porto, 2018). Given the dearth of investigations on learning framed in citizenship pedagogy, we argue that teachers and policymakers, along with students, should question the structure and application of English instruction, and CLIL specifically, to better address our ever-changing world.

In the same wavelength, Coyle's (2007) concept of effective CLIL learning, which manifests in the concerted growth of skills, knowledge, and understanding of disciplinary content mediated by a foreign language, enunciates the need for a process-oriented approach to make explicit and sustain the learning processes. In

response, this study embraces CLIL's 4Cs (content, communication, culture, and cognition) as the cornerstones to examine the language learning processes. Although CLIL research with educational orientation has explored learning processes and teacher-student perspectives, it barely documents how ECP can enhance students' motivation and engagement with ecological literacy in language classes. The hybridity of CLIL pedagogy requires cross-disciplinary evaluation and feedback, ranging from language acquisition, language learning, intercultural learning, 21st-century education, and so on. Furthermore, the implementation and evaluation of CLIL instruction need to take into account the social, cultural, and political agenda (Coyle, 2013).

In today's Indonesian context, tertiary students affirm the value and necessity of mastering English for academic and occupational purposes (Fitrawati et al., 2023). In response to such needs, CLIL has been shown to address attitudinal constraints while enhancing tertiary students' linguistic and non-linguistic skills (Khoiriyah, 2021; Susilawati et al., 2020; Sutrisna, 2023). Notwithstanding, the majority of CLIL studies in Indonesia delve into teachers' and students' perspectives of CLIL implementation, noting the motivational, cognitive, and linguistic gains (Fitrawati et al., 2023; Marhamah, 2024; Prasandha & Aniq, 2023). Although CLIL is gaining attention nationally, research has paid limited attention to pedagogical design and instructional procedures, which are fundamental to the CLIL research agenda (Coyle, 2007). Consequently, there remains a notable gap in understanding how CLIL lessons are systematically planned and enacted through content pedagogy within Indonesian higher education.

Given the significant gap in applying ECP as a pedagogical framework within CLIL instruction, this study aims to capture how students engage in the lessons and how such experience influences their engagement and motivation toward learning English and ecology. That ECP enables the import of issues beyond environmental domains, e.g., demography, economy, and culture (Ardoin et al., 2022), provides a potentially thriving learning context in which students can resort to a multitude of disciplinary literacies as the launch pads for English and ecology learning. This study explores their motivation as a psychological and sociocognitive drive grounded in the classroom as a socially mediated arena where cognitive-situated, process- and product-oriented, and social-psychological aspects interact and warrant scrutiny (Doiz et al., 2014). This multi-faceted approach affords a holistic view of classroom motivation within CLIL studies, shedding more light on integrating ECP into English learning. By extension, it manifests as one of the few initiatives responding to the agenda of embracing literacy as the center of education (Meyer et al., 2015). To that end, it employs a SWOT framework to better capture students' learning experiences. This study is specifically guided by the following questions.

1. How does an English class with ECP influence first-year tertiary students' motivation and attitude toward English and ecology-integrated learning?
2. How do the students perceive the experiences in English class with ECP as seen from the framework of SWOT (strengths, weaknesses, opportunities, and threats) analysis?

Grounded in humanity and science pedagogy (Garzón-Díaz, 2021; Rauschert & Byram, 2018), ECP makes the integration of diverse CLIL lessons possible, particularly in view of elevating students' multidisciplinary literacies, higher-order

thinking skills, and cross-cultural awareness. This constitutes a perfect match for the eight core projects in the *Merdeka Belajar* curriculum (emancipated curriculum), which involve scientific, social, entrepreneurial, cultural, and professional domains (Directorate of Higher Education, 2020). This study aims to envision holistic shifts for instructors and curriculum developers to direct English courses toward their educational orientation that fosters the development of engaged and motivated learners, a widely endorsed aspiration in CLIL-related studies in Indonesia (Khoiriyah, 2021; Mukadimah & Sahayu, 2021; Sutrisna, 2023).

Literature Review

Broadening CLIL pedagogy through Ecological Citizenship Pedagogy (ECP)

This study holds the view that ECP paves effective CLIL learning in both product and process domains. Concerning learning outcomes, ECP shares with CLIL the objective of extending disciplinary knowledge, skills, and understanding through authentic learning activities (Ardoin et al., 2022). Dealing with the process, ECP resonates with CLIL's 4Cs in that it values a motivating context that introduces learners to deep learning tasks involving multidisciplinary resources and practices (Ardoin et al., 2022; Porto, 2021; Porto & Byram, 2015). Table 1 summarizes how ECP can help surmount some of the issues in CLIL studies.

Table 1. Challenges in CLIL and potential solutions with ECP

Challenges reported in CLIL research	How ECP meets the challenges
Input-based transmission approach (Porto, 2018)	ECP fosters higher-order thinking, product- and process-oriented learning, and collaborative inquiry to address real-world problems (Ardoin et al., 2022; Hadjichambis et al., 2020; Olsen et al., 2020)
Scarce emphasis on learning autonomy (Meyer et al., 2015; Porto, 2018)	ECP supports peer-led projects as a manifestation of a student-centered learning community (Ardoin et al., 2022; Garzón-Díaz, 2021; Hadjichambis et al., 2020; Porto & Byram, 2015)
Extensive focus on receptive language skills (van Kampen et al., 2020)	ECP enables students to organize project-based learning supported by multimodal input and output (Ardoin et al., 2022; Hadjichambis et al., 2020; Porto, 2018)
Inauthentic tasks and excessive orientation to examination (Y. Y. Lo & Jeong, 2018)	ECP follows a student-driven project which taps into authenticity, creativity, and criticality by experimenting with ideas, perspective taking, self-reflection, and civic action (Ardoin et al., 2022; Hadjichambis et al., 2020; Porto, 2018)
The dissonance between students' cognitive development and language proficiency (Marhamah, 2024; Porto, 2018)	ECP extensively involves genuine problem-solving tasks for enhancing pluriliteracies and multimodal communicative competence (Ardoin et al., 2022; Häggström & Schmidt, 2020; Hadjichambis et al., 2020)

Ecological concepts serve as learning content and shift the locus from learning to use the language to using the language to learn it, making explicit the relevance of ECP to CLIL. In addition, ECP can advance subject-related literacies by guiding

inquiry and product-process-based learning. Figure 1 highlights how 4Cs are operative throughout ECP.

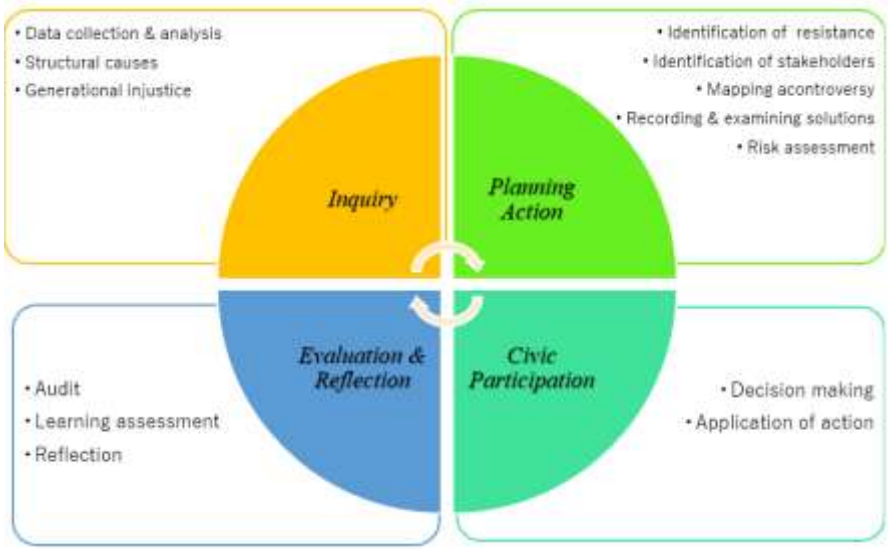

Figure 1. Ecological Citizenship Approach adapted from Hadjichambis et al. (2020)

Inquiry aids in engaging students' initial discipline-specific knowledge or *C-content,* as the foundation for subsequent exploration. Students initially glean data related to biodiversity, ecology, climatic conditions, or socioeconomic data during data collection and analysis (Hadjichambis et al., 2020). Next, structural causes of environmental issues are identified, which may involve conflicting interests or incorrect trash management. Students investigate whether an environmental issue contributes to the accumulation of wealth by certain developers (intra-generational injustice) or diminishes ecosystem services that future generations may be deprived of (inter-generational injustice).

Planning Action encourages student collaboration to develop individual or shared solutions for environmental issues. Mapping controversy serves as an alternative approach, where students critically analyze conflicting stakeholder arguments for a deeper understanding. Recording and examining relevant solutions helps evaluate the positives and negatives of each option, including structural resistance. Risk assessment then comes into play, allowing students to anticipate and address potential threats. This stage integrates *C-content* and *C-cognition* for solution development, while *C-culture* provides a shared framework to explore socio-environmental values, cultural practices, and institutional codes for sustainable strategies.

Civic Participation denotes the core activity in ECP. Students need to go through decision-making to determine the most relevant solutions. Application of actions in the community will then follow, either within individual or collective spheres. Social media can trigger concerted efforts and evaluate the suggested solutions. In this study, integrating ICT is a "must" for it helps students to navigate a wider range of linguistic and content-related resources (Garzón-Díaz, 2021; Porto, 2018). At this stage, all 4Cs are engaged: *C-culture* emphasizes community values and practices, *C-cognition* supports designing civic actions based on ecological

concepts and data (*C-content*), and *C-communication* facilitates collaboration across tasks for effective civic participation.

Evaluation & Reflection helps identify students' progress through authentic assessment. First, teacher and students can *Audit* their civic actions. Comparative analysis is also doable by comparing their skills, knowledge, and attitude before and after the civic project. They may also investigate hidden dimensions of civic actions to better understand their learning contexts. They can eventually examine the strengths and weaknesses of their projects.

Since this staged-managed progression increases task complexity as students engage in civic actions, formulating the balance between content and language learning tasks across stages requires natural scaffolding that draws upon students' pre-existing content and language repertoires. Failure here risks demotivating students and abating any inkling of interest in English (Grandinetti et al., 2013). This premise applies to this research, especially because we had no prior information regarding students' content and language mastery. As such, we decided to engage the holistic lens of effective CLIL instruction.

A holistic view of effective CLIL learning: Motivating environment

This research investigates how English class can serve as a socially grounded locus of learning. This directs our attention further to engagement in learning activities, learning goals, social relations within the class, and student-teacher reflections. Contextual variables can influence how students make sense of their positionality, competence, and membership (Sung, 2021). This study takes relevance to the fluid nature of CLIL as an approach that allows genuine access to using language meaningfully and augmenting content mastery (Doiz et al., 2014).

Given the ideological discourses that drive language learning motivation (Wang et al., 2021), CLIL encourages students to initiate self-transformation and identity formation as they witness how linguistic proficiency paves a more comprehensive access to the world around them, widening their horizons. As displayed in Figure 2, this research attends to Coyle's (2013) framework for investigating how CLIL stimulates student motivation and engagement.

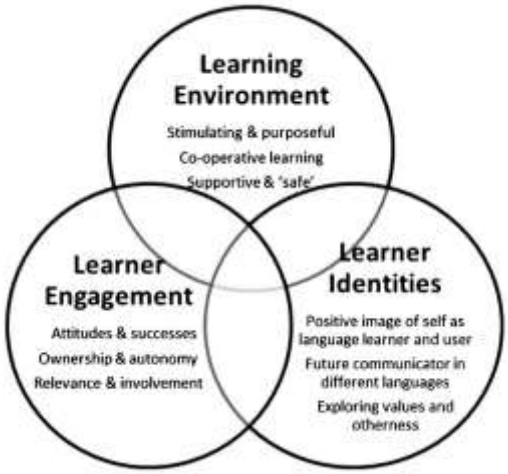

Figure 2. Framework for interpreting motivation in CLIL

The research underscores three fundamentals of language learning motivation: the learning environment (i.e., learning resources and approach), learner engagement (e.g., investment, challenge, and interest), and learner identity (i.e., perspective, attitudes, and positionality). Careful examination of these essentials allows a more nuanced interpretation of student motivation (Coyle, 2013; Doiz et al., 2014) while mitigating the risk of overgeneralizing the motivational effects of CLIL instruction (Coyle, 2013). This framework emphasizes the centrality of the classroom in fostering students' confidence, motivation, and achievement (Garzón-Díaz, 2021; Grandinetti et al., 2013) and coheres with a literature review study in the Indonesian context, noting the individual, instructional, and institutional bearings to successful CLIL implementation (Marhamah, 2024). Class-based studies in Indonesia further affirm the pivotal roles of learning environment, learner engagement, and learner identities for impactful CLIL lessons (Fitrawati et al., 2023; Prasandha & Aniq, 2023).

CLIL hybridity denotes an ideal ground for amplifying student motivation through the infusion of real-world issues into the classroom (Coyle, 2013). In this regard, ECP can help to align English learning with such pertinent topics as global responsibility, sustainability, and ecological awareness, each of which can reorient language classrooms toward ecological and societal movement (Coyle, 2013; Meyer et al., 2015; Porto, 2018). This entanglement between lives within and beyond the classroom helps students envision the relevance of their learning across tempo-spatial contexts (Ardoin et al., 2022; Häggström & Schmidt, 2020; Hadjichambis et al., 2020). This bears coherence with the interdisciplinary and inquiry-driven properties of CLIL, which have been gradually documented to gain traction in Indonesian secondary and tertiary education (Khoiriyah, 2021; Mukadimah & Sahayu, 2021; Sutrisna, 2023). The immersion in this authentic learning will strengthen their motivation and engagement since it involves tasks that encourage their agency and responsibility toward their communities.

Nevertheless, these propositions are largely limited to perceptive and attitudinal boundaries, since process-driven inquiry into CLIL lessons grounded in subject pedagogy in Indonesia has remained sparse (see Khoiriyah, 2021; Marhamah, 2024). These literatures envision the need for meticulous investigation into classroom-based study that portrays how CLIL framed in an authentic subject pedagogy can be established to augment students' motivation. In response, the present study employs a grassroots-level initiative through Collaborative Action Research (CAR) to systematically examine and improve CLIL practices in Indonesian classrooms. By extension, this study is devoted to examining contextually grounded strategies that effectively foster students' motivation and engagement.

Method

The research was conducted in two intact classes involving freshmen in the Social Science Education major, each with 41 students aged 18–19 years old. A total of 56 females and 26 males took part. The classes were chosen using convenience sampling since the first author also had access to the course, thus ensuring strong familiarity with the students' needs and classroom dynamics. The authentic engagement with the students as co-researcher fostered richer qualitative insights. This is essential for a study that seeks to better fathom authentic challenges

to students' learning and structure coping pedagogical strategies. Albeit potentially limited generalizability, the convenience sampling was deemed relevant to this CAR project as it prioritized practical pedagogical insights over broad statistical representation.

The study deployed Sagor's (2005) four-stage collaborative action research (CAR) model (planning, acting, observing, reflecting) for its iterative, practitioner-oriented approach, enabling adaptive integration of Hadjichambis et al.'s (2020) ECP instructional strategies. Sagor's model was chosen over alternatives like Kemmis and McTaggart's (1988) spiral model due to its emphasis on localized problem-solving, a fit for this study's goal of surmounting classroom-specific challenges while maintaining methodological flexibility. The model is summarized below.

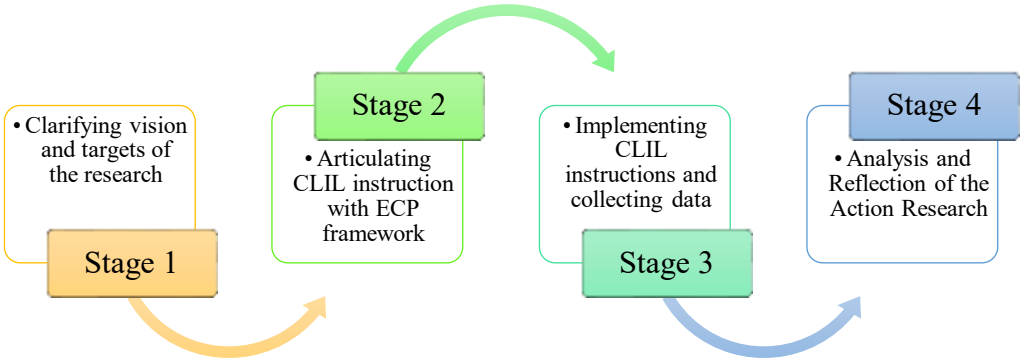

Figure 3. The research procedure

Clarifying the research vision and target

The research spanned 16 meetings, conducted over a four-month semester. The duration allowed sufficient time for genuine engagement with ECP-driven CLIL tasks and captured the developmental shifts in students' motivation and learning. Also crucial was that this timespan aligned with the actual academic schedule, which helped avoid artificial compression of learning progress.

The study began with two preliminary discussions: one with a content teacher to develop the syllabus, materials, tasks, and assessments, and another with an English teacher to prepare instructional instruments from a language perspective. As participants and co-researchers, the students actively contributed their perspectives on learning objectives, activities, and materials. The participants were informed of the research's objectives, and their written consent was obtained. Their participation was voluntary, without any relation to their course grade. The data from the participants were anonymized upon reporting, identified as S1, S2, S3, etc., and they had the freedom to withdraw from research participation at their discretion without penalty.

The students' engagement as co-researchers affords a reflexive resource to the first author's dual roles, i.e., course instructor and researcher. These roles provided deep familiarity with the classroom realities yet required meticulous measures to address potential bias and pedagogical decisions. In response, the first author kept a reflexive journal throughout the research, documenting how the teaching decisions intersected with data collection. Additionally, the first author worked with the four co-authors, not involved in teaching duty, to review the

amassed data and challenge assumptions. Data triangulation with anonymized student diaries and quantitative motivational data was employed to ensure the findings were grounded in multiple voices.

Articulating the CLIL instruction

The course followed a "known content to unknown language" approach, using known content to build upon students' language gains (Grandinetti et al., 2013). Three topics, namely Geology, Demography, and Cultural Geography, were divided into units aligned with student-led projects, each covered over four meetings to ensure sufficient time for learning. English was not made obligatory, allowing for the development of cross-linguistic and metalinguistic competencies through code-switching, translation, and translanguaging (Coyle, 2007).

Compulsory for all freshmen in every faculty, the course represented a weak form of CLIL, where language learning supersedes content mastery (Coyle, 2007). This was essential as the students entered with diverse English proficiency levels without any prior CLIL experience. Another rationale for employing the weak form of CLIL was the students' eventual proficiency at B1 at the end of their senior high school education. Disciplinary content served as a scaffold to aid in linguistic growth, instead of subject mastery, well aligned with tertiary education's emphasis on multidisciplinary literacies. Their learning performance was assessed based on their engagement in class discussion, online discussion forum before and after class, and their essay in the final examination. These components, however, were not reported in the present study, given its emphasis on the students' motivational dynamics and voices on their learning experience.

Implementing CLIL instructions and collecting data

The research spanned 16 meetings, with 100 minutes of face-to-face sessions, supplemented by before- and after-class online discussion forums to introduce topics and extend task discussions. The study investigated how the ECP framework supported effective CLIL lessons by examining learners' cognitive, affective, and motivational outcomes. This approach addressed the potential for CLIL to trigger both sophisticated cognition and negative affectivity, as suggested by prior research (Otwinowska & Foryś, 2017). The course plan below details the implementation of CLIL instructions.

Table 2. Course plan

Topic	Meeting	Learning Activity
Course Introduction	1	-
Geology of Indonesia	2	Inquiry–identifying main and specific details in explanatory texts related to energy sources and threats to energy sustainability.
	3	Planning Civic Action–composing an explanatory text related to the solutions to anticipate the threats.
	4	Decision Making–drafting a report on the analysis of an energy sustainability project.
	5	Application of Action – engaging in collaborative efforts to develop and present a digital poster outlining the sustainable energy project.

Topic	Meeting	Learning Activity
Indonesia Demography	6	Inquiry–analyzing explanatory texts to identify the factors and challenges associated with the national demographic surplus through a structured literature circle discussion.
	7	Planning Civic Action–participating in collaborative reading to analyze the threats and opportunities associated with demographic surplus and propose strategic coping strategies.
	8	Decision Making-developing a written report presenting the analysis of the green growth project aimed at the demographic boom.
	9	Application of Action – participating in developing and publishing a Google Site to disseminate the green growth project for Indonesia
Cultural Geography	10	Inquiry – reading explanatory texts to find out the definition and elements of cultural landscapes.
	11	Data Collection – collaborating in shared reading to seek the negative outcomes of unsustainable urban development.
	12	Planning Civic Action – working collaboratively to create a Google Site that outlines a detailed plan for sustainable city development.
	13	Application of Action–creating and publishing a Google Site to raise public awareness about the environmental consequences of socioeconomic growth and present its coping strategies.

Questionnaires on learning motivation and attitude

We employed a five-point Likert scale to collect quantitative data. The instrument was translated into Bahasa Indonesia and trialed on 35 non-English department freshmen. The motivation battery, based on Xuejun (2020), measured intrinsic motivation, extrinsic motivation, and amotivation, demonstrating strong internal validity ($p < .05$) and reliability ($\alpha = 0.854$). Additional dimensions, including perceived task value, success expectancy, and the cost of learning, were adapted from De Smet et al. (2019) and also showed satisfactory validity ($p < .05$) and reliability ($\alpha = 0.854$).

Observation and reflection diary

Participatory observation was conducted across sessions to capture students' experiences using theoretical frameworks and reflections. Brief notes were taken during lessons to minimize disruption, and more detailed reflections were developed afterward. Reflection followed Ward and Mc Cotter's (2004) framework, promoting continuous inquiry into teaching praxis by integrating personal and collective perspectives. The reflection addressed focus, inquiry, and change, aligning with the research goal of achieving and sustaining students' deep learning. Students were invited to share their thoughts on their learning experiences using a SWOT reflection sheet.

Analysis and reflection

The questionnaire data were analyzed using descriptive statistics and, due to violation of data normality ($p < 0.05$), a Wilcoxon Signed-Rank Test was operative to examine noteworthy changes in students' motivation by comparing their motivational beliefs of task value, expectancy of success, and English learning motivation before and after the course. Qualitative data from SWOT reflections were interpreted through Braun and Clarke's (2006) analysis framework. We familiarized ourselves with the data by reading student reflections to identify dominant codes and emerging themes. Repeated analysis refined codes into categories based on their interconnections, which were then used to redefine themes aligned with reflection prompts. Throughout the analysis, we continuously revisited the emergent dataset to ensure that our interpretation was genuinely anchored in the data. Any divergence between us was addressed through systematic peer debriefing, negotiated consensus, and iterative crisscrossing of coded excerpts.

Findings and Discussion

Findings

Higher task value, expectancy of success, and EFL learning motivation

The survey results in Figure 5 exhibit moderate attitudes toward English, English learning, and learning motivation. It also illustrates the trends in the perceived task value and expectations for success, while noting a slightly lower perceived cost of learning at the course finale.

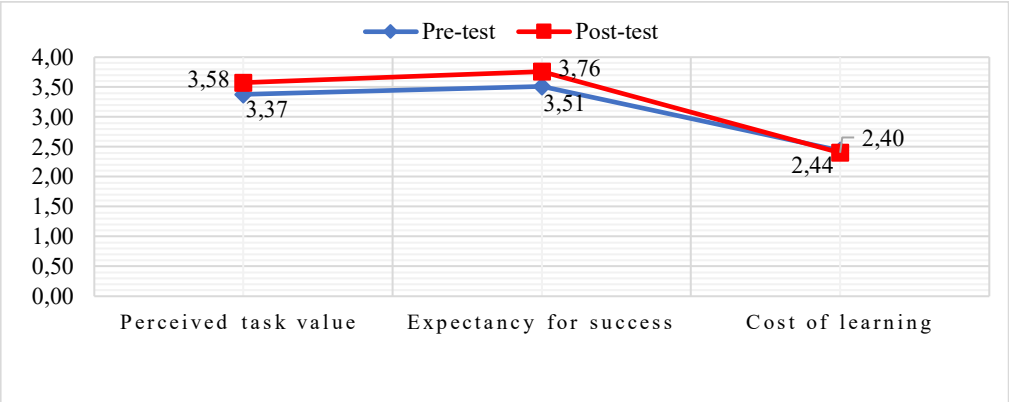

Figure 4. Task value, success expectancy, & learning cost

As shown in Figure 5, two significant differences are identified. The Wilcoxon Signed-Rank Test was employed to measure the effect of student engagement in ECP project on their perceived task value, expectancy of success, and cost of learning. The analysis marked a statistically significant difference in expectancy for success between pre-treatment and post-treatment scores ($Z = 2.359$, $p = .018$), implying that the treatment exerted a meaningful impact on students' expectations of success. Likewise, perceived task value also demonstrated a significant gain ($Z = 2.392$, $p = .017$), indicating that students' perception of the value of the task was influenced by the treatment. In contrast, no statistically significant difference was evident in perceived cost ($Z = 0.554$, $p = .580$), suggesting that students' perception of the effort or resources necessitated to complete the task

remained consistent before and after the intervention. These trends are consistent with the findings on motivation, as depicted in Figure 6.

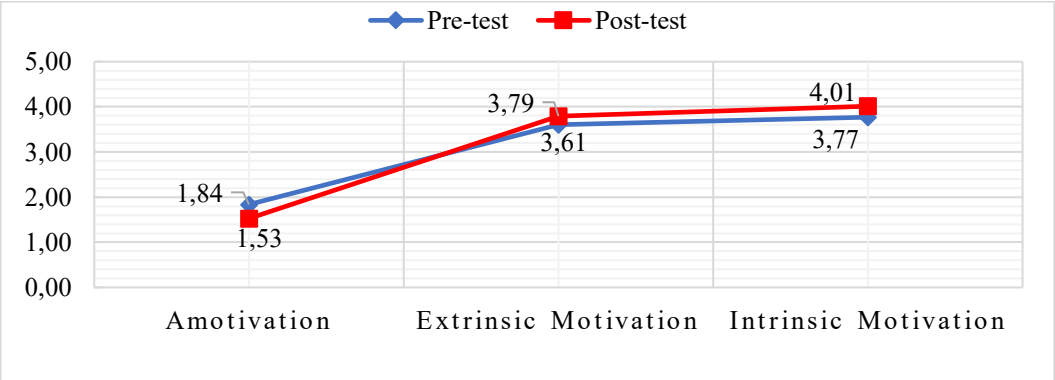

Figure 5. EFL learning motivation

The Wilcoxon Signed-Rank Test also exhibited noteworthy changes in other motivational constructs. A highly significant change was observed in amotivation levels ($Z = 3.504$, $p < .001$), which indicated that the treatment reduced students' lack of motivation substantially. Moreover, a statistically significant change was captured ($Z = 2.851$, $p = .004$). This implied that the treatment elevated students' motivation determined by external factors. Likewise, intrinsic motivation demonstrated a significant increase ($Z = 2.919$, $p = .004$), an indication of stronger internal interest or enjoyment in the task. These data collectively corroborate that the treatment effectively leveraged students' motivational profiles. The subsequent sections report the results of observation and reflection to further account for the statistical evidence.

During the course, three key factors influenced students' motivation: input language and content comprehensibility, task complexity, and collaborative inquiry. Initially, students struggled with the language in the first module, as it was too challenging. Many found elementary tasks (e.g., identifying the subject and verb of a sentence) challenging, leading to low success expectancy and a high perceived learning cost. To address these issues, consistent support was provided to help students navigate unfamiliar language and content, and modifications were made to simplify tasks and incorporate multimodal resources.

Students showed better engagement with familiar ecological topics. The use of well-known contexts allowed them to experiment with both conceptual and linguistic skills. They also displayed more initiative in the third module on urban development issues, showing a higher expectancy for success. However, challenges related to task complexity remained, including procrastination and slow-paced engagement in discussions. This led to missed deadlines and required adjustments to task expectations, such as reducing the number of readings and assignments. The collaborative inquiry had a positive impact on students' motivation. Group poster exhibitions and peer reviews allowed students to share, showcase, and improve their work. These encouraged learning from peers and fostered a supportive environment, which helped struggling students gain confidence and improve their performance.

Figure 6. Peer review during poster exhibition

Students' feedback was generally unbiased, as they provided relevant and constructive comments on their peers' work. Each student was encouraged to focus on both the strengths and weaknesses of the content and language in their peers' learning artifacts. The inclusion of familiar ecological issues fostered meaningful exchanges of ideas and inspired students to share and explore new perspectives on common local challenges. Supportive feedback was evident in the sticky notes attached to their posters, as shown in Figure 7. These exchanges highlighted how students valued each other's contributions by explicitly identifying the strengths and weaknesses for improvement in their peers' work. Integrating familiar content as a foundation for language learning proved particularly beneficial for students who struggled with English. Notably, some of the quieter students or those who typically disengaged during regular lessons became equally active participants, expressing their thoughts on the artifacts in ways accessible to their peers, often mediated by the strategic use of Indonesian and English.

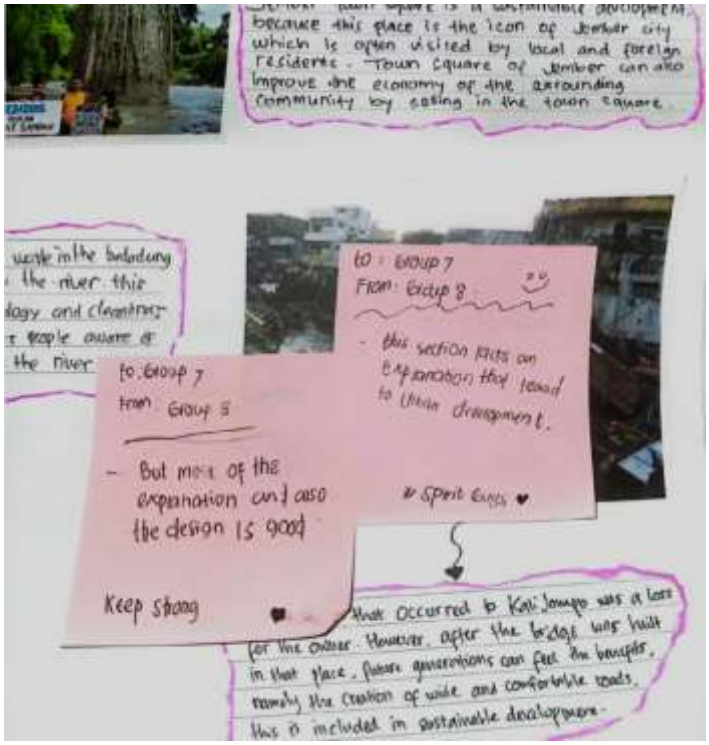

Figure 7. Samples of peer feedback

The engagement of multimodal resources, in combination with well-known ecological issues, enhanced students' capacity to refine and extend their knowledge of ecology and language. This strategy enabled them to build upon their prior knowledge, as indicated by their increasingly detailed comments on their peers' posters. Nevertheless, during the Participation in Civic Action stage, they encountered challenges because of the absence of structured guidance, resulting in confusion and disengagement. Again, we implemented intensive monitoring and feedback, and we dedicated class time to group consultations and providing personalized suggestions. Moreover, we introduced simplified texts as well as barcoded links to additional resources, as shown in Figure 8.

Figure 8. Shared reading with the aid of teacher-made resources

These texts were found helpful in motivating them to navigate the resources for meaning-making to analyze problems and solutions to urban development and demographic surplus. Additionally, manageable texts provided chewable bits of information to fuel their inquiry.

The strengths, weaknesses, opportunities, and threats of the course

The post-lesson reflections, analyzed using a SWOT analysis, provide valuable insights into students' learning experiences, gains, and challenges. The strengths of the CLIL course are categorized into motivational drives and learning gains. The first area highlights the positive learning environment, learner identity, and engagement, while the second focuses on the perceived learning outcomes. Students reported a motivating environment that helped shape positive self-images as language learners, foreign language users, and budding scientists. Additionally, learning engagement reflected students' learning ownership.

Table 3. Strengths of CLIL course with ECP

Themes		Sample excerpts
Learning Motivation	Empowering atmosphere	• *The class put English in an ecological context, helping students develop the language for learning ecological issues* (S33)
	Strong participation	• *We learnt a lot from the online discussion forum* (S34)
	Growth of positive identity	• *I could be myself, having the chance to speak English and not just learning basic vocabulary* (S40)
Learning Gains	Meaningful experiences	• *I learnt how to summarize written information on ecology for our Google Site* (S46)
	Improved ecological literacy	• *We could predict future ecological issues and what impact they would have* (S28)
	Enhanced digital literacy	• *The course involved multiple technologies to support discussion which made it creative and engaging* (S9)

The students highly valued the abundant exposure to ecological learning and its linguistic properties. The student-led inquiry endows students with the opportunity to grow their learning autonomy and ownership. One student admitted that "students were encouraged to be active, creative, and innovative upon task completion, which was exciting" (S55). This participation gives the advantage of hands-on projects to the students as they are immersed in knowledge co-construction. Another student described that "the course helped understand geography and ecology in a different way and a different language, yet it was advantageous" (S57). Moving forward, the links between language and content learning fostered continuing engagement. This integration of known content paves the way for their linguistic growth, eventually enhancing their self-efficacy. Despite the complexity of the material, students reported increased self-esteem and self-efficacy throughout the learning process. S10 mentioned "I could test myself and see how well I wrote an essay on ecology without using a translation machine" (S10). Another student pointed out, "after all, I found a real place for learning English, not just ordinary subject-predicate-object lessons" (S40). When asked to

pinpoint the evidence of learning success, the students highlighted both the learning product, e.g., "deep understanding of ecological issues and English" (S13); "completing group project with decent scores" (S14), and learning process, e.g., "the confidence to share ideas, give critical comments and responses between peers" (S8), and "engaging effectively in online discussion" (S10).

The exposure to ecological issues through multimodal texts, such as videos, posters, and written materials, plays a critical role in the acquisition of the lexico-grammatical repertoires specific to ecology. Not only does this approach improve their familiarity with content-specific language, but it also grants meaningful opportunities to apply their newly acquired knowledge and skills in authentic contexts. One of the students admitted that "the class taught [her] how to use new vocabularies on ecology in an essay and to identify information in English article from journal" (S38). The distinct discourse refines the language input to suit students' expertise and scaffolds their learning by locating and comprehending relevant texts, journal articles, and research reports (S41). Engaging with ecological concepts and issues provides the stepping stones to expanding students' knowledge and understanding.

Equally crucial is the increment of higher-order thinking skills, activated through evaluating learning resources, analyzing environmental challenges, and identifying practical solutions. What we found appealing was that several students admitted "learning concepts on geography, ecology, and environmental issues better" (S61). These moments of deep learning enunciate their awareness of the pressing demand for environmental conservation. Reporting a by-product of their project, the students confirm improved understanding and ability to engage digital tools across stages to assist students' inquiry. One example was when they "learnt technological skills, as in designing Google Site and managing online discussion forum" (S22). Nevertheless, moments associated with hardship and potential burnout have to be acknowledged, as summarized in Table 4.

Table 4. Weaknesses of CLIL Course with ECP

Themes	Sample excerpts
Heavy workload	• *Weaknesses in the large number of analyses … if you do not understand the material, you will have difficulty* (S25)
Complex procedure	• *At first it was difficult to understand the task because we never had it before, as in the online forum* (S39)
Unfamiliar language	• *The lesson was delivered in English, with some new vocabularies, so it was confusing sometimes* (S8)

The students acknowledged the workload from learning language and ecology as the most significant downside. ECP involved inquiry with several connected yet specified tasks. As each task engages unique thinking processes, e.g., analytical skills during the Inquiry stage, they voice the bombardment of excessive cognitive workload. One student reported, "One downside of the course was that students had more assignments than those in other courses" (S61). This exhaustion stemmed from the complex procedures, from analyzing environmental degradations to crafting coping strategies. The activities put a considerable workload upon them, even more so as they are mediated by a foreign language. A

student also mentioned that "the language was complex and difficult to understand for those without basic English knowledge" (S61). Because these subject-related vocabulary and terminology dictate their understanding, insufficient language proficiency can not only hamper learning progress but also spark frustration. Notwithstanding these reported challenges, some future academic and professional opportunities are also identified, as shown in the table below.

Table 5. Opportunities of the CLIL Course with ECP

Themes	Sample excerpts
Wider potential for global networking	• *English helps me to communicate with people from different countries and adapt to different environment* (S65)
Higher career opportunity	• *Learning English improves my interpersonal skill which is a fundamental for future success* (S65)
Continued deep learning	• *I might be able to explore the places in Jember further while writing a script using the English language* (S60)
Attaining highly evolved ecological literacy	• *I could expand my knowledge of ecology and raise my awareness to be a global ecologically literate citizen* (S33)

While reporting the role of English in a constantly globalized world, students appreciate the opportunities in international communication where cross-cultural encounters become increasingly omnipresent. This is believed to inspire their ability to adapt to various communicative contexts. Likewise, being able to effectively engage in communication is presumed to "help achieve decent employment opportunity" (S8). Ecological contents embedded in English learning empower students' exploration of innovation to excel in their future careers. As indicated by one of the students, "the innovative learning method can be further explored to guide my future teaching practice" (S39). Furthermore, many students regard the interpersonal skills facilitated by the English language as essential for securing their future positions in the professional sphere. The other critical potential is the takeaways from the CLIL lessons to collaborate for future positive impacts on their surroundings. One student stated, "I can gain in-depth understanding of ecological issues to help raise public awareness of preserving the environment" (S12). These opportunities, however, are not without accompanying threats. Table 5 provides a summary of the threats perceived by the students.

Table 6. Threats to the CLIL course with ECP

Themes	Sample excerpts
The dearth of extramural English	• *The lack of communicative practice in real ecological setting might be a challenge* (S41)
Burnout and boredom	• *We will feel exhausted and bored* (S11)
Dilemmatic learning regulation	• *Time management will be difficult, given abundance of tasks in each course and extracurricular matters* (S44)

The data indicate that, despite authentic learning resources and experiences, students have limited access to authentic communicative contexts outside the classroom. While such resources are not impossible to build, they assume that this endeavour to create the required context necessary for the meaningful integration of ecological literacy and English will be time-consuming. As stated by one student, "it takes extra efforts to make impact on ecology through real action outside the class" (S33). Additionally, the heavy workload implies the potential for burnout and boredom throughout the attempts at completing ecological citizenship projects, which involve multiple higher-order thinking skills. The fact that this is conducted in a foreign language also escalates the demands. One student mentioned, "it takes extra efforts to understand technical terminologies, concepts, arguments, and critical thinking skills through a foreign language" (S61). Although they voice the intention to self-regulate their future learning on similar hybrid tasks involving ecology and English, they remain confident that managing the transition from one set of assignments to another remains substantially demanding.

Discussion

Enhanced motivation through Ecological Citizenship Pedagogy

This study has acknowledged marked growth in EFL learning motivation, perceived task value, and expectancy for success, despite the absence of improvement in the cost of learning. Understandably, students affirm a fairly modest cost of learning, before and after the course. In line with Marhamah (2024), the hybridity of CLIL lessons can trigger exhaustion and disengagement, regardless of familiar content.

Subject-specific discourses are moderated across stages to enable students to navigate foreign language related to subject content, a pivotal strategy for seamless transition from language-oriented to balanced emphasis between content and language (Grandinetti et al., 2013; Marhamah, 2024; Prasandha & Aniq, 2023). Besides, ECP offers a stage-managed structure through which students collaborate in a series of meaningful tasks (Ardoin et al., 2022), helping them to accomplish one learning objective at a time. This proves the critical role of modifying the course modules in which simple linguistic structures and diverse tasks are supported by multimodal resources, e.g., charts, videos, and photographs. While this moderation aids the navigation of unfamiliar lexicogrammatical features, such scaffolding needs to be interpreted with caution since it may adversely undermine the disciplinary depth desired in CLIL (Roth et al., 2024).

Although the students acknowledged cost of learning, they also acknowledged higher values of learning post lessons. As English serves as both an end and medium of learning, they witness how the learning helps to gain the passport to wider ecological knowledge than what they usually have in content courses using the first language. In resonance with previous findings (Ardoin et al., 2022; Porto & Byram, 2015), employing local content devolves direction for teachers and students to apply acquired knowledge and skills for authentic purposes, yet this assumption is not without caveats. For some more advanced learners, local issues may be deemed relevant yet conceptually superficial, which does not afford cognitive exploration for continuing motivation (Meyer et al., 2015; Roth et al., 2024). The mediation through multimodal composing encourages them

to *language* their knowledge and understanding, concomitantly compensating for inadequate lexicogrammatical repertoires and fostering their self-esteem. Likewise, the convergence of diverse opinions sustains the internalization of trust, respect, and democratic skills (Ardoin et al., 2022; Coyle, 2013; Porto, 2018). This practice helps grow their confidence as members of the learning community. However, the perceived advantages of multimodal resources coupled with local familiar content should be interpreted not only as enhancement but also compensatory measures which may blur the gaps in students' proficiency to engage in a more level-appropriate disciplinary texts independently.

According to Grandinetti et al. (2013), considerable planning and modification of CLIL instructions are proven to be a key factor in the growing expectancy of success. While the students struggled with the language dimensions in multiple tasks, a significantly higher expectancy of success was reported at the end of the course. Working towards one final goal of inquiry, they are guided to complete one specific mini-goal in each meeting. In addition, providing access to learning resources through technology helps tackle suboptimal learning performance, especially in English. Gradual progression in both linguistic and disciplinary practices mirrors the pluriliteracies approach, which envisions students' increment in communicative and conceptual continua (Meyer et al., 2015). However, such an increment calls forth deeper investigation inasmuch as behavioral changes do not automatically guarantee gains in language and content mastery. Despite the alignment with the pluriliteracies approach, the instructional impact may be more uneven than presumed. Further examination is necessary to confirm the extent to which students develop in both extremes through more fine-cut methods such as lexical and discursive analysis (Zhao et al., 2022; Zhou et al., 2025).

Albeit the issues concerning task procrastination throughout the course, our observation and reflection found that the weaker and disengaged students finally began contributing to the group inquiry. Stronger intrinsic motivation, coupled with higher expectancy for success and task value, closely mirrors students' voices on deep learning practices. This presumption well aligns with a mixed-method study noting the driving force of intrinsic motivation and self-efficacy to deep learning in CLIL lessons (Zhou et al., 2025). Yet, the alignment requires meticulous interpretation since the reported motivational gains are not shown to directly translate into sustained engagement. ECP employs multimodal resources and different modes of production formats, e.g., online discussion, posters, infographics, paragraph writing, and Google sites, allowing students of different learning performances to see themselves as competent in their area of expertise. This multimodality, however, raises questions as to whether the observed performance is genuine or illusory. In congruence with Fitrawati et al. (2023), this study affirmed that diverse student-friendly learning inputs and output modes are fundamental to effective CLIL. The findings, however, have yet to undergo the scrutiny of whether the motivational and attitudinal dynamics lead to their eventual gains in language and content. A clear framework of inquiry and extensive teacher support is necessary to allow them to remain on board, while keeping more able peers challenged by setting the pace of task completion within the group. Recognizing small successes after each learning experience can boost students'

motivation and self-efficacy, fostering their self-regulatory practices and continued effort in CLIL (Lo, 2025).

Finally, enhanced intrinsic and extrinsic motivations illustrate why ECP is worthy of restructuring CLIL lessons. ECP supports the students to build upon lingering curriculum objectives and affirm the alignment between the lessons and their major. This distorts the peripheral values of English among students of non-English departments. Moreover, this perspective helps to concretize the academic gains of learning English for future study and career. For intrinsic motivation, the focus on environmental awareness, globalization, and cosmopolitanism allows the import of socioenvironmental issues from both local and global contexts (Porto, 2018). These issues enable both the teacher and students to explore the role of English as a lingua franca and gain insight into the cultural diversity of English-speaking countries. Supporting Doiz et al. (2014), the lessons also allow students to learn English for expanding their cultural, conceptual, and linguistic repertoires. ECP aligns with CLIL in that both heighten motivation and blur the foreignness of English by addressing low EFL learning motivation, a common issue among non-English department students (Smet et al., 2019). Nevertheless, these decent outcomes require more balanced interpretation since the motivational growth may stem from group accountability, social pressure, or external structures, rather than the intrinsic drives for deep engagement.

Predominance of positive views towards the CLIL lessons with ECP

The majority of students recount the values of ECP to enrich CLIL lessons with literacy practices that are both meaningful and ecologically situated, especially through inquiry into ecological issues. Their reflections document the emergence of authentic learning skills, e.g., critical thinking, reflection, and analysis, each of which echoes established disciplinary and communicative competencies (Coyle, 2013; Imamyartha et al., 2023; Meyer et al., 2015). Yet, closer reading indicates that these learning processes do not automatically arise.

The ECP immerses students in deliberately structured learning where inquiry is extensively scaffolded and shared among them to help navigate content and language embedded in complex ecological cases. This orchestration may account for why their reported engagement coheres with previous claims about the benefits of immersing L2 learners in knowledge co-construction (Rieder-Bünemann et al., 2022). Another critical point is that this study embraces Type-B CLIL, wherein disciplinary literacy practices are carefully moderated to ensure accessibility for language learning. Not only does technology integration leverage students' digital literacy, but it also facilitates cultural and scientific learning by expanding student access to ecological literacy and linguistic repertoires thereof (Garzón-Díaz, 2021; Zhao et al., 2022). This echoes the previous studies in Indonesian settings, noting that nurturing direct engagement and learning creativity can enact impactful CLIL learning (Khoiriyah, 2021; Samad et al., 2025). Technology integration, however, may advantage students with stronger confidence and digital literacy, raising questions about equity in learning gains with ICT as a prevalent enigma in Indonesia (Cahyono, 2023). By extension, continued scaffoldings through lesson moderation and technology integration underline a potential caveat: to what extent do scaffoldings maintain the epistemic openness and unpredictability manifest in real ecological phenomena?

Notwithstanding these gains, some downsides need to be acknowledged. With only three 4-meeting units, students still enunciate the exhaustion stemming from their projects. Reflections reveal promising outputs of the lesson modification involving manageable activities and simple language features across learning stages. Consistent monitoring and tailored inputs are compulsory to ascertain precise comprehension and execution of ecological projects. To some extent, this highlights the conditional nature of ECP benefits; they materialize only when sustained guidance, clear expectations, and differentiated pacing are systematically enacted. Future CLIL researchers must interrogate whether these logistic and structural scaffoldings cultivate ideal CLIL learning or inadvertently undermine students' growth. That inquiry is pivotal for understanding the trade-off between providing the necessary aids and preserving genuine ecological literacy. Another issue pertains to the unfamiliar language within content-specific discourse, widely reported as the most significant learning constraint yet also the most immediate manifestation of learning gains given the content-language congruence (Coyle, 2013; Garzón-Díaz, 2021). Thus, students and teachers need to develop mutual target language awareness as a means to access, evaluate, and optimize content and language learning (Banegas & Mearns, 2023). As Banegas and Arellano (2024) contend, target language awareness fundamentally determines CLIL task authenticity, and scant attention to this aspect may derail CLIL from meaningful learning to a superficial version of ecological learning.

The future learning gains have illustrated how ECP bridges classrooms and communities beyond. On the same wavelength, students assign more significance to English as the bridge between cross-cultural as well as plurilingual environments. Different yet supportive learning practices can distil valuable takeaways that can translate into students' immediate and future success as a geographer or pedagogue. In spite of the absence of civic actions, students envision a future with extensive ecological learning that addresses both local and global issues. This reflects their increasingly advanced ecoliteracy, as they alter their perspectives and deepen their understanding ("we must be able to utilize this highly renewable energy … for the environment") and strengthen public awareness ("I can gain in-depth understanding of ecological issues to help raise public awareness") (Porto & Byram, 2015). Albeit the positive views on perceived learning gains, this study has yet to engage authentic measures of subject mastery and its associated English command (Zhao et al., 2022), which are required for more conclusive findings on the efficacy of ECP to enhance CLIIL praxis.

Lastly, the study identifies the lack of extramural English as a barrier to thriving motivation to learn English in an EFL setting. This approach not only bridges the gap between classroom learning and practical application but also fosters deeper engagement by enabling students to tackle real-life tasks, collaborate on problem-solving activities, and communicate effectively in situations that mirror authentic purposes (Smet et al., 2019). One example is involving students in video podcast production to engage communities beyond their class through YouTube. While this may pose an extra workload and navigation of multiple digital resources, this experience can make their voices heard and appreciated by global citizens. Nevertheless, each of these opportunities poses challenges. CLIL has been notorious for its relatively demanding tasks. Learning academic English for non-English department students can be extremely laborious and stressful, let alone

learning English as the medium to acquire content understanding (Prasandha & Aniq, 2023). Implementing the CLIL approach, which supports teachers in designing and evaluating various aspects of a lesson, can serve as an effective solution (Grandinetti et al., 2013). Breaking down ecological citizenship projects into manageable and digestible lesson segments can help maintain student engagement and prevent disengagement.

Conclusion

This study has demonstrated how framing CLIL lessons in ECP fosters tertiary EFL learners' motivation and attitudes to learning English and ecology. Bridging ecology and English learning drives students' thriving participation in using English for meaningful purposes while growing their expertise. English specifically, CLIL teachers need to ensure sufficient exposure to meaningful use of English within relevant academic or institutionalized contexts. Topical consideration upon lesson planning denotes a decent step forward, yet that does not entirely satisfy the goal. The following implications warrant further attention if CLIL is expected to achieve its fullest potential through subject-related pedagogy.

Immersing students in stage-managed literacy practices helps them not only acknowledge the academic relevance but also experiment with their knowledge, skill, and understanding as a holistic individual. This genuine learning experience engages their identities as scientists, language learners, and members of a community. The hybrid nature of CLIL learning requires consistent teacher monitoring and modification of the lessons to ensure that students can navigate the dual load throughout their learning. Given their basic language proficiency, the inclusion of multisemiotic means familiar to students, such as digital posters, videos, and text-based resources, helps to anticipate suboptimal proficiency, providing equal support for everyone to excel in the lesson. This democratic environment enacts an ambient atmosphere where even little progress in English and ecoliteracy is appreciated, celebrating both their challenges and successes as essential steps toward growth and development. If teachers aim at sustained motivation and engagement in CLIL lessons, they need to work closely with students to identify supportive and unsupportive elements of the course and build on these inconducive areas by, for example, modifying task complexity, adjusting linguistic accessibility, and co-constructing lesson procedures and assessment.

Notwithstanding, several pitfalls in this study are worthy of careful attention. Generalizations based on the findings and the implications thereof need to be made with careful moderation. That the majority of participants are classified into beginner to intermediate levels of English proficiency suggests potential investigation into ECP from the perspectives of the more advanced students. The increment in motivational and attitudinal dimensions also needs to be interpreted judiciously since this study has not attempted to explore whether such self-perceived gains translate into incremental mastery of content, communication, cognition, and cross-cultural competencies within the target discourse area.

References

Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2022). A systematic mixed studies review of civic engagement outcomes in environmental education. *Environmental Education Research*, *29*(1), 1-26. https://doi.org/10.1080/13504622.2022.2135688

Banegas, D. L., & Arellano, R. (2024). Teacher language awareness in CLIL teacher education in Argentina, Colombia, and Ecuador: A multiple case study. *Language Awareness, 33*(4), 707-730. https://doi.org/10.1080/09658416.2024.2321875

Banegas, D. L., & Mearns, T. (2023). The language quadriptych in content and language integrated learning: Findings from a collaborative action research study. *Journal of Multilingual and Multicultural Development,* 1-16. https://doi.org/10.1080/01434632.2023.2281393

Bárcena-Toyos, P. (2020). Teachers' classroom practices to achieve integration of content and language in CLIL. *NABE Journal of Research and Practice*, *10*(3–4), 94-106. https://doi.org/10.1080/26390043.2021.1890989

Cahyono, B. Y. (2023). Workable approaches in EFL teaching mediated by mobile technology during the pandemic and post-pandemic: Indonesian EFL teachers' experiences and expectations. *Computer Assisted Language Learning Electronic Journal CALL-EJ, 24*(1), 137-158.

Coyle, D. (2007). Content and language integrated learning: Towards a connected research agenda for CLIL pedagogies. *International Journal of Bilingual Education and Bilingualism*, *10*(5), 543-562.

Coyle, D. (2013). Listening to learners: An investigation into "successful learning" across CLIL contexts. *International Journal of Bilingual Education and Bilingualism*, *16*(3), 244-266.

De Smet, A., Mettewie, L., Hiligsmann, P., Galand, B., & Van Mensel, L. (2019). Does CLIL shape language attitudes and motivation? Interactions with target languages and instruction levels. *International Journal of Bilingual Education and Bilingualism*, *26*(5), 534-553. https://doi.org/10.1080/13670050.2019.1671308

Directorate of Higher Education. (2020). *Buku Panduan Merdeka Belajar-Kampus Merdeka [A guide book for implementing the emancipated curriculum]*. Directorate of Higher Education.

Doiz, A., Lasagabaster, D., & Sierra, J. M. (2014). CLIL and motivation: The effect of individual and contextual variables. *The Language Learning Journal, 42*(2), 209-224. https://doi.org/10.1080/09571736.2014.889508

Fitrawati, Syarif, H., Zaim, M., & Perrodin, D. D. (2023). The perceptions of tertiary students and lecturers regarding CLIL-based critical reading material employing interactive multimedia. *Indonesian Journal of Applied Linguistics, 12*(3), 598-611. https://doi.org/10.17509/ijal.v12i3.36838

Garzón-Díaz, E. (2021). From cultural awareness to scientific citizenship: Implementing content and language integrated learning projects to connect environmental science and English in a state school in Colombia. *International Journal of Bilingual Education and Bilingualism*, *24*(2), 242-259. https://doi.org/10.1080/13670050.2018.1456512

Grandinetti, M., Langellotti, M., & Ting, Y. L. T. (2013). How CLIL can provide a pragmatic means to renovate science education - even in a sub-optimally bilingual context. *International Journal of Bilingual Education and Bilingualism*, *16*(3), 354-374. https://doi.org/10.1080/13670050.2013.777390

Hadjichambis, A. C., Reis, P., Paraskeva-Hadjichambi, D., Činčera, J., Boeve-de Pauw, J., Gericke, N., & Knippels, M.-C. (Eds.). (2020). *Conceptualizing environmental citizenship for 21st century education*. Springer.

Häggström, M., & Schmidt, C. (2020). Enhancing children's literacy and ecological literacy through critical place-based pedagogy. *Environmental Education Research*, *26*(12), 1729-1745. https://doi.org/10.1080/13504622.2020.1812537

Imamyartha, D., Widiati, U., Anugerahwati, M., & Hamat, A. (2023). Moodle and Telegram to develop students' language performance and knowledge co-construction in technology-enhanced CLIL. *Studies in English Language and Education*, *10*(2), 863-883. https://doi.org/ 10.24815/siele.v10i2.28295

Imamyartha, D., Widiati, U., Fardhani, A. E., Alifiyah, A., & Hapsari, G. C. (2024). STEAM pedagogy in foreign language education: An endeavour to broaden CLIL pedagogy through 6Es framework. *Indonesian Journal of Applied Linguistics*, *13*(3), 477-489. https://doi.org/10.17509/ijal.v13i3.66933

Kemmis, S., & McTaggart, R. (1998). *The action research planner.* Springer.

Khoiriyah. (2021). Content and language integrated learning (CLIL) in Indonesian context: An overview. *Jurnal Pendidikan Progresif, 11*(3), 587-601. https://doi.org/10.23960/jpp.v11.i3.202110

Lo, A. W. T. (2025). Unlocking CLIL success: Exploring the interplay between students' self-regulation levels, linguistic challenges, and learning outcomes in Hong Kong secondary education. *Language and Education, 39*(2), 433-451. https://doi.org/10.1080/09500782.2024.2314135

Lo, Y. Y., & Jeong, H. (2018). Impact of genre-based pedagogy on students' academic literacy development in content and language integrated learning (CLIL). *Linguistics and Education*, *47*, 36-46. https://doi.org/10.1016/j.linged.2018.08.001

Marhamah. (2024). Navigating content and language integrated learning (CLIL) in Indonesian universities: Promise and pitfalls. *TOFEDU: The Future of Education Journal, 3*(5), 2202-2211.

Meyer, O., Coyle, D., Halbach, A., Schuck, K., & Ting, T. (2015). A pluriliteracies approach to content and language integrated learning–mapping learner progressions in knowledge construction and meaning-making. *Language, Culture and Curriculum*, *28*(1), 41-57. https://doi.org/10.1080/07908318.2014.1000924

Mukadimah, H., & Sahayu, W. (2021). Embedding content and language integrated learning (CLIL) into English for specific purposes curriculum for vocational high school. *Jurnal Pendidikan Vokasi, 11*(2), 204-212. https://doi.org/10.21831/jpv.v11i2.41065

Olsen, S. K., Miller, B. G., Eitel, K. B., & Cohn, T. C. (2020). Assessing teachers' environmental citizenship based on an adventure learning workshop: A case study from a social-ecological systems perspective. *Journal of Science Teacher Education*, *31*(8), 869-893. https://doi.org/10.1080/1046560X.2020.1771039

Otwinowska, A., & Foryś, M. (2017). They learn the CLIL way, but do they like it? Affectivity and cognition in upper-primary CLIL classes. *International Journal of Bilingual Education and Bilingualism*, *20*(5), 457-480. https://doi.org/10.1080/13670050.2015.1051944

Porto, M. (2018). 'Yo antes no reciclaba y esto me cambio por completo la consiencia': Intercultural citizenship education in the English classroom. *Education 3-13*, *46*(3), 317-334. https://doi.org/10.1080/03004279.2016.1259247

Porto, M. (2021). Intercultural citizenship in foreign language education: An opportunity to broaden CLIL's theoretical outlook and pedagogy. *International Journal of Bilingual Education and Bilingualism*, *24*(7), 927-947. https://doi.org/10.1080/13670050.2018.1526886

Porto, M., & Byram, M. (2015). A curriculum for action in the community and intercultural citizenship in higher education. *Language, Culture and Curriculum*, *28*(3), 226-242. https://doi.org/10.1080/07908318.2015.1087555

Prasandha, D., & Aniq, L. N. (2023). Shifting language ideology and teaching practice in multilingual class: Voices of Indonesian lecturers in CLIL. *JEELS (Journal of English Education and Linguistics Studies), 10*(1), 57-75. https://doi.org/10.30762/jeels.v10i1.434

Rauschert, P., & Byram, M. (2018). Service learning and intercultural citizenship in foreign-language education. *Cambridge Journal of Education*, *48*(3), 353-369. https://doi.org/10.1080/0305764X.2017.1337722

Rieder-Bünemann, A., Hüttner, J., & Smit, U. (2022). "Who would have thought that I'd ever know that!": Subject-specific vocabulary in CLIL student interactions. *International Journal of Bilingual Education and Bilingualism, 25*(9), 3184-3198. https://doi.org/10.1080/13670050.2021.2020211

Roth, T., & Bogner, F. X. (2024). The trade-off between STEM knowledge acquisition and language learning in short-term CLIL implementations. *International Journal of Science Education, 46*(4), 338-361. https://doi.org/10.1080/09500693.2023.2232502

Sagor, R. (2005). *The action research guidebook: A four-step process for educators and school teams.* Corwin.

Samad, I., Ismail, I., Dyah, M., & Fatmawati, F. (2025). CLIL in action: Enhancing academic writing and content knowledge in Indonesian university students. *Maspul Journal of English Studies*, *7*(1), 31-42. https://doi.org/10.33487/majesty.v7i1.8857

Sung, C. C. M. (2021). Negotiating participation and identity in a second language: Mainland Chinese students' English learning experiences in a multilingual university in Hong Kong. *Research Papers in Education*, *36*(4), 381-401. https://doi.org/10.1080/02671522.2019.1677760

Susilawati, R., Riniawati, R., Yunita, S., & Darwis, R. (2020). CLIL in higher education: Impacts on student learning and practical implications. *Journal of English Pedagogy and Applied Linguistics, 1*(1), 15-26. https://doi.org/10.32627/jepal.v6i1.1435

Sutrisna, I. P. E. (2023). CLIL instructions in Indonesian tertiary tourism study program: An analysis of students' perceptions. *International Journal of Instructions and Language Studies, 1*(1), 23-31. https://doi.org/10.25078/ijils.v1i1.2374

van Kampen, E., Meirink, J., Admiraal, W., & Berry, A. (2020). Do we all share the same goals for content and language integrated learning (CLIL)? Specialist and practitioner perceptions of 'ideal' CLIL pedagogies in the Netherlands. *International Journal of Bilingual Education and Bilingualism*, *23*(8), 855-871. https://doi.org/10.1080/13670050.2017.1411332

Villabona, N., & Cenoz, J. (2022). The integration of content and language in CLIL: a challenge for content-driven and language-driven teachers. *Language, Culture and Curriculum*, *35*(1), 36-50. https://doi.org/10.1080/07908318.2021.1910703

Wang, Z., McConachy, T., & Ushioda, E. (2021). Negotiating identity tensions in multilingual learning in China: A situated perspective on language learning motivation and multilingual identity. *Language Learning Journal*, *49*(4), 420-432. https://doi.org/10.1080/09571736.2021.1915366

Ward, J. R., & McCotter, S. S. (2004). Reflection as a visible outcome for preservice teachers. *Teaching and Teacher Education*, *20*(3), 243-257. https://doi.org/10.1016/j.tate.2004.02.004

Xuejun, Y. (2021). EFL Learning motivation differences of Chinese junior secondary school students: A mixed-methods study. *Education 3-13*, *49*(2), 203-216. https://doi.org/10.1080/03004279.2019.1711143

Zhao, K., Zhou, J., & Zou, B. (2022). Developing subject knowledge co-construction and specific language use in a technology-enhanced CLIL programme: effectiveness and productive patterns. *International Journal of Bilingual Education and Bilingualism, 25*(6), 2172-2185. https://doi.org/10.1080/13670050.2021.1890688

Zhou, S., Fung, D., Thomas, N., Fung, D., & Thomas, N. (2025). Towards deeper learning in EMI lectures: The role of English proficiency and motivation in students' deep processing of content knowledge. *Journal of Multilingual and Multicultural Development, 46*(7), 1749-1764. https://doi.org/10.1080/01434632.2023.2248078