

CHAPTER I

INTRODUCTION

1.1. Background

Over the years, English has been an integral part of education and officially taught as a foreign language in the country since 1950. The status of English in Indonesia is well documented in the state decree number 096/1967 of the Ministry of Education and Culture of the Republic of Indonesia. This status clearly defines English as a foreign language and as a compulsory subject within the curriculum from secondary schools to tertiary levels throughout the country. For over more than two decades, the objective of teaching English has been to enhance reading skills for dealing with English academic text. As core content within the national curriculum, English contents included other skills, such as listening, speaking, writing, and with still greater emphasis on reading in year 1984 up to 1994.

Teaching English as a foreign language aims to help students learn and differentiate between correct and incorrect, as well as appropriate and inappropriate, language usage. English is predominantly taught in classrooms and is not commonly used as a means of communication outside of the classroom. The success of teaching English as a foreign language is influenced by two key factors. The first factor is the role of the lecturer. English lecturers play a crucial role in the classroom by providing input and exposure to language use. Lecturers are expected to teach English effectively and make the teaching and learning process vibrant and meaningful. Additionally, as required by the curriculum, English lecturers should be able to enhance the region's potential by incorporating local content into teaching and learning activities. The environmental, social, and cultural contexts, as well as regional demands, are examples of local content explored in this study.

Another factor determining success in teaching English in the classroom is the learning approach and materials provided. Since

students' exposure to English is limited, the materials given should boost their motivation to learn English and engage them in the classroom atmosphere and learning activities. However, the materials currently used in English as a Foreign Language (EFL) teaching rarely involve the environmental settings where the language learners live and interact daily. Students are often provided with contexts that have little relation to their everyday lives. The context used in the provided materials for teaching English is mostly based on inauthentic situations with a more formal and structured pattern of standardized English, supported by texts, dialogues, and other aspects of global content. In addition, Ariana & Erma (2018: 376) underlined that this disconnect makes students feel less engaged with the learning materials, such as the environment.

As one of the disciplines in education, English Language Teaching (ELT) has contributed to addressing environmental issues by incorporating environmental education into English lessons. The efforts in environmental teaching within ELT are based on four primary postulates. First, Hauschild et al. (2012: 4-5) states the benefits of environmental teaching in language education for developing learners' language skills and character inside and outside of school. Moreover, Mercer et al. (2022: 393) argue for the responsibility of the ELT field to address global issues, including the environment. This responsibility includes promoting ecological thinking and critical awareness among English students alongside their language development Xiong (2014: 232).

Additionally, Bowden (2010: 17-19) highlights the potential of the ELT field to address sustainability issues such as climate change, pollution, ocean acidification, and deforestation in English lessons. Finally, Beigel (1996: 111) discusses the appropriateness of ELT for comprehensive intellectual and philosophical discussions of nature and environmental ethics through literary teaching. Given these principles, various efforts have revealed effective methods and strategies for teaching environmental issues in ELT. These include the use of content and task-

based language learning instructions Hauschild et al., (2012: 4-8; Nkwetisama, (2011: 113), environmental essay writing Setyowati et al., (2022: 30), and the enhancement of students' speaking skills Manurung & Ria (2018: 90), environmental awareness Manurung & Ria (2018: 1); Setyowati et al., (2022: 35), cultural and ecological identities Matthewman (2017: 78), and critical thinking skills Setyowati et al., (2022: 38). Despite these valuable contributions, the scope of environmental teaching and research in ELT remains limited. Thus, there is an urgent need to significantly expand these initiatives.

The goal of such endeavors is to provide more evidence and demonstrate a stronger commitment from the ELT community in addressing environmental challenges. The more initiatives there are for environmental research and teaching in ELT, the more positive the outlook and the stronger the ELT field's position in global environmental sustainability. This can help overcome skepticism regarding the role and involvement of ELT in the process of decolonizing the Earth. As previously asserted, ELT holds a social responsibility to enhance students' ecological and critical thinking skills, along with their English proficiency Xiong (2014: 237), to effectively address global issues such as the environment Mercer et al., (2022: 14).

According to Luardini and Sujiyani (2018: 376) integrating Ecolinguistics into the English as a Foreign Language (EFL) classroom introduces a novel and interdisciplinary approach that goes beyond conventional language instruction. Ecolinguistics, a field at the intersection of linguistics and environmental studies, explores the intricate relationship between language and the environment Hauschild et al., (2012: 3).

In the EFL context, this approach strives to instill a heightened environmental consciousness in language learners, fostering an understanding of the crucial role language plays in shaping perceptions and attitudes toward the environment. By incorporating ecological themes, terminology, and real-world examples into language lessons, educators

can empower students to engage in meaningful discussions on environmental issues while simultaneously enhancing their language proficiency. This approach not only equips learners with the linguistic tools to articulate their thoughts on sustainability but also promotes a deeper connection to the global challenges of our time Gogolin (2021: 2). Embracing Ecolinguistics in the EFL classroom thus offers a unique opportunity to cultivate environmentally conscious language learners who are not only proficient in English but also equipped to contribute to a more sustainable and ecologically aware global community.

Realizing the aforementioned matters, to make students more connected to learning materials used in the classroom and to help teachers fulfill the curriculum demand for local content development, the Eco English language teaching approach can be considered as an alternative solution. An Eco-English language teaching approach can be used to teach English as a foreign language. As previously stated, Eco English language teaching links the study of language with ecology or the environment. By using the Eco English language teaching approach, students learn English to represent the nature or environment they deal with every day. To enhance and give exposure to language skill competencies, students are trained using learning materials that link them to their everyday surroundings naturally and culturally. When students understand the relationship between classroom lessons and real life, they realize the advantages or significance of learning.

An Eco-ELT approach can provide such assistance by offering a more context sensitive perspective of language that recognizes its emergent nature within the symbolically rich, dynamic, and contested environment of social interaction. As such, it is an optimal alternative to prepare learners for real-life communication because it mirrors more accurately than other methods the circumstances of language use that learners are expected to encounter outside of class. An ecological view of

learning sees it as emerging from participation in communities of practice Lave & Wenger (1991: 51).

In analyzing the Eco English Language Teaching approach and its impact on enhancing critical thinking skills and environmental literacies in higher education, it is essential to consider various theoretical perspectives. One such perspective is provided by Ives (2018: 1389), who identifies six key components: Material, Experiential, Cognitive, Emotional, and Philosophical. These components offer a comprehensive framework for understanding the different dimensions that influence teaching methodologies and learning outcomes. In addition to Ives' original components, this research introduces two additional elements that are crucial in the context of Eco English Language Teaching: social interaction, and technology integration. Social interaction emphasizes the importance of collaborative learning and community engagement in the educational process. Finally, technology highlights the role of digital tools and resources in enhancing teaching methods and facilitating access to information.

By integrating these components, the research aims to provide a holistic analysis of the Eco English Language Teaching approach, offering insights into the multifaceted factors that drive effective teaching practices and their implications for fostering critical thinking and environmental literacies in higher education.

Based on the observation, many students have trouble English, especially in the early semester of the Islamic University of Makassar's Agriculture study program. Most speakers who have experienced anxiety know the importance of calmness and confidence when speaking. The student's low critical thinking ability shows that critical thinking skills are not easy for students, but critical thinking skills can be learned and trained. Critical thinking skills must be learned from an early age, given the importance of the critical thinking skills that must be possessed. In addition to the student's ability factor, the docent factor is also a supporter. There

are still many lecturers using conventional learning. They have more dominant roles than students. Students only listen to explanations and do the assignments given by the lecturer. As a result, the students do not feel the process of learning is going well. In addition to the critical thinking factors of students and the use of conventional methods and approaches, there are a number of factors that cause the low level of English proficiency of students, especially in agriculture majors, namely the minimum level of environmental literacy and the limited vocabulary of students. This can also be a consideration for making policies on the importance of environmental education courses so that they will be held in each study program. Critical thinking can lead to the formation of a wise nature. Critical thinking allows one to analyze information carefully and make the right decisions; therefore, students can improve their environmental literacy and vocabulary skills in learning English.

Having critical thinking skills is an essential part of environmental education because if people do not criticize their thoughts and practices towards nature, they cannot be aware of their mistakes and take the necessary precautions to protect it. The significance of the environment for humans and nonhumans has been the subject of interest in many disciplines. To create environmental awareness, education integrates Eco-linguistic approach is a combination of ecological system theory and linguistic system into the language learning system in a particular environment.

Researchers has conducted a preliminary study on the development of the theoretical concept to be developed with several samples related to Eco ELT-based learning according to the theory proposed by Ives (Materials, Experimental, Cognitive, Emotion, Philosophical) in the control class and with the development of social interaction and technology integration in learning. The results of the trial showed quite significant results with an increase in students' learning outcomes in learning activities. In collaboration activities, students were able to express ideas

and opinions well and critically and demonstrated good awareness of the given theme. The use of technology in learning also became one of the factors that increased student activity and interest in learning activities.

Ennis (2011: 1) states that applying the ELT approach can help improve students' critical thinking skills. Critical thinking is reflective thinking that focuses on decision-making about what to believe and what to do next. The environmentally friendly approach to teaching English by integrating all four components can produce useful mental activity to help develop critical thinking students characterized by their ability to solve problems, make decisions, analyze assumptions, evaluate, and conduct research. Moreover, one of the most important goals of education today is the ability to think critically. Critical thinking has become one of the competencies that must be possessed by students and is the goal that they want to achieve in education. Critical thinking is a very essential ability in life and works effectively in all aspects of it.

Based on the Islamic University of Makassar (UIM) has established the mission "Kemilau Bintang 9", which embodies nine strategic values: *Keilmuan* (Scientific Advancement), *Madani* (Civility), *Ekosistem* (Sustainable Ecosystem), *Integrasi* (Integration), *Luaran* (Quality Outcomes), *Aktif* (Active Engagement), *Upgrading* (Continuous Improvement), and *Business* (*Entrepreneurial Mindset*). This vision guides all academic programs in developing innovative, relevant, and socially responsible educational practices. In line with this vision, English language education particularly within non-language study programs such as Agriculture is expected to move beyond conventional teaching approaches and contribute to sustainable human development, environmental awareness, and 21st-century competencies.

Among its nine pillars, *Keilmuan* (Scientific Advancement) and *Ekosistem* (Sustainable Ecosystem) stand at the forefront of this research, serving as the philosophical and practical foundation for the development of the Eco English Language Teaching (Eco-ELT) approach. These two

pillars reflect UIM's commitment to producing scholarly works that address real-world challenges while fostering ecological awareness and sustainable thinking among students. Within the value of Keilmuan, UIM emphasizes the scientific strengthening of curriculum and research activities that address real-world problems. The present study aligns with this value by developing and evaluating the Eco English Language Teaching (Eco-ELT) approach as a pedagogical innovation grounded in ecological, linguistic, and educational theories. Eco-ELT integrates environmental themes into English instruction, thus promoting scientific inquiry, critical thinking, and contextual learning. At the same time, the mission of Ekosistem in Kemilau Bintang 9 emphasizes the creation of a learning environment that is sustainable, holistic, and responsive to local ecological conditions. This resonates directly with the core principles of Eco-ELT, which emphasize contextualizing English learning within students' local environmental realities. For Agriculture students at UIM, whose academic focus is inherently linked to land, resources, and ecological systems, integrating environmental themes into English lessons enables them to connect their disciplinary knowledge with global communication skills.

The primary objective of this study is to analyze the effectiveness of the Eco English Language Teaching (Eco ELT) approach in enhancing critical thinking skills and environmental literacy among students in higher education. Specifically, this study focuses on students in the Agriculture study program at the Islamic University of Makassar, who have been observed to struggle with speaking English and exhibit low levels of critical thinking skills. By integrating ecological content into English language instruction, the study aims to create a more engaging and relevant learning experience that not only improves language proficiency but also fosters environmental awareness and critical thinking.

Despite the recognized importance of integrating environmental education into various disciplines, there is a significant gap in its

application within English Language Teaching (ELT). Current pedagogical practices often fail to incorporate local environmental contexts, resulting in a disconnect between students' daily lives and the learning materials. Traditional methods predominantly rely on standardized, global content that lacks relevance to the students' immediate environment, leading to diminished engagement and motivation Ariana & Erma (2018: 376). Additionally, there is a paucity of research focused on the specific challenges faced by students in non-language disciplines, such as Agriculture, in acquiring English proficiency. This study addresses these gaps by exploring the potential of the Eco ELT approach to provide context-sensitive and meaningful language instruction that resonates with students' everyday experiences and environmental realities.

This study introduces a novel approach to ELT by integrating principles of Ecolinguistics, an interdisciplinary field that examines the relationship between language and the environment. By embedding ecological themes, terminology, and real-world examples into language lessons, this approach aims to enhance students' linguistic abilities while simultaneously promoting environmental consciousness and critical thinking skills. This dual focus not only equips learners with the language tools necessary to articulate their thoughts on sustainability but also instills a deeper connection to global environmental challenges Gogolin (2021: 1).

Furthermore, this study leverages Bloom's taxonomy of cognitive skills, specifically the revised version proposed, to structure learning objectives that enhance both lower-order and higher-order thinking skills. This structured approach aims to cultivate students' ability to critically comprehend written material, solve problems, make decisions, analyze assumptions, evaluate information, and conduct research Ennis, (2011). By fostering these competencies, the Eco ELT approach seeks to prepare students for real-life communication and active participation in environmental preservation efforts.

In summary, this study aims to fill the existing gaps in ELT by introducing an Eco ELT approach that integrates ecological content into language instruction. This approach not only addresses the disconnect between learning materials and students' everyday lives but also aims to enhance critical thinking skills and environmental literacy. Through this innovative pedagogical strategy, the study seeks to demonstrate the potential of Eco ELT to create more engaging, relevant, and impactful English language education in higher education settings.

1.2. Research Questions

Based on the theoretical background, this study emphasizes the Eco English language teaching approach in enhancing critical thinking skills, environmental literacies, and incidental vocabulary in higher education. Some of the research questions addressed in the present study are:

- 1.2.1. How is the ECO English Language Teaching Approach (ECO-ELT) approach implemented in agricultural department at Universitas Islam makassar?
- 1.2.2. How does the Eco English language teaching approach enhance critical thinking skills and environmental literacy in Agricultural Department at Universitas Islam Makassar?
- 1.2.3. What are the levels and characteristics of students' critical thinking skills and environmental literacy in agricultural department at Universitas Islam Makassar?

1.3. Objective of the Research

Based on the background and research questions stated in the last term, the researcher formulated three objectives for this research.

- 1.3.1. To evaluate the implementation of the Eco ELT approach in Universitas Islam Makassar.

1.3.2. to examine how ECO ELT enhances the students' critical thinking skills and environmental literacy; and

1.3.3. To assess and interpret students' critical thinking skills and environmental literacies in Universitas Islam Makassar.

1.4. Research Benefit

The study aims to evaluate the Eco English Language Teaching Approach for enhancing critical thinking skills, environmental literacy in higher education. Theoretically, the research findings contribute to teaching and learning English at higher education, mainly related to the Eco ELT Approach in enhancing critical thinking skills, environmental literacies, in higher education.

Practically, this research benefits the participants by making them more aware of their ELT approach to performing in the process of teaching and learning English in the classroom. It can also serve as a reference for the lecturers to improve their performances during teaching and learning. Besides, it also helps to use the English language teaching approach in the teaching-learning process. At least other lecturers can apply this teaching approach in their classrooms. Doing so is expected to increase ELT approach productivity when they address critical thinking skills and environmental literacy with their learners.

Theoretically, the results of this study provided scientific information and multiple advantages in education in general, especially in motivating lecturers to make their teaching more effective through the module. In addition, the research findings will contribute to teaching and learning English at higher education, mainly related to the Eco ELT Approach in enhancing critical thinking skills and environmental literacy. In addition, this study aligns with the Sustainable Development Goals, particularly SDG 4 (Quality Education), SDG 13 (Climate Action), and SDG 15 (Life on Land), by integrating environmentally responsible values and

sustainable awareness into English language learning. It promotes a holistic educational approach that equips learners with the knowledge, skills, and attitudes necessary to contribute to sustainable development through informed actions and responsible communication.

The result of this study is also helpful for lectures in preparing their learners to enter the next higher education level. It can help lectures develop the quality of the teaching-learning process and motivate the learners to use the target language accurately. This research can also be a reference for those who want to study English teaching and learning regarding the Eco-ELT approach in language classrooms. Based on the analysis and discussion in this study.

1.5. Research Limitation

In this research, the focus on investigating the interactions that occur within the Eco English Language Teaching (Eco ELT) approach in enhancing critical thinking skills and environmental literacies in higher education. To develop the Eco English language teaching approach by integrating social interaction aspect in basic theory proposed by Ives et al. (2018: 1389). Additionally, to assess students' critical thinking skills and environmental literacies, the frameworks provided by Ennis (2011: 1) and Hungerford and Peyton (1977: 4) was employed, respectively.

The researcher has chosen the Ives et al. (2018) framework for analysing English lecturers' application of the Eco ELT approach because of its simplicity and ease of use. The Eco-ELT movement significantly impacts environmental sustainability, providing teachers, curriculum designers, and policymakers with opportunities to select and design Eco-ELT activities or programs aligned with five intervention types: material, experiential, cognitive, emotional, and philosophical.

Critical thinking, as defined by Ennis (2011: 1), involves higher-order thinking skills, including understanding problems well, translating problems into mathematical symbols, devising strategies to solve

problems, drawing conclusions, and explaining these conclusions. Ennis's FRISCO model (Focus, Reason, Inference, Situation, Clarity, and Overview) outlines the essential elements of critical thinking. Environmental literacy, according to Hungerford and Peyton (1977: 4-5), is reflected by individuals who possess the knowledge and ability to communicate the need for environmental action strategies and are willing to apply this knowledge to address environmental issues. The levels of environmental literacy encompass knowledge, awareness, ethics, emotional engagement, and behavioral practices, ultimately guiding sustainable development and higher ecological literacy.

This study is conducted within the context of higher education to explore the integration of Eco linguistics, which combines ecological and linguistic systems into a language learning framework. This approach emphasizes the close relationship between language, biology, society, and culture Collins (2019: 103). It is essential to incorporate local cultural ecological systems into English curricula to enhance students' critical thinking and environmental awareness. The chosen focus on higher education is based on the premise that students, as future stewards of the environment, must develop critical thinking skills to identify and address ecological issues. Without critical reflection on their interactions with nature, students may fail to recognize and rectify harmful practices. Thus, fostering critical thinking and environmental literacy in higher education is crucial for preparing students to contribute to a sustainable future Timothy & Obiekezie (2019: 39); Louw (2013: 64).

1.6. Novelty of the Research

Previous studies on Eco English Language Teaching (Eco-ELT) have predominantly focused on conceptual discussions, descriptive classroom implementations, or bibliometric mappings that illustrate the distribution of themes, keywords, and research trends related to environmental content in language education. Bibliometric analyses using tools such as VOSviewer have demonstrated that Eco-ELT research is

commonly associated with environmental awareness, sustainability, and language learning. However, these mappings remain largely descriptive and have not progressed toward analytical or pedagogical integration.

Although co-word and co-occurrence analyses have identified clusters related to Eco-ELT, no prior research has explicitly examined the co-occurrence of Eco-ELT with critical thinking skills and environmental literacy as integrated learning outcomes, nor has it translated these relationships into a systematic and innovative instructional strategy. This reveals a significant gap in the literature, particularly regarding how environmental content can be pedagogically structured to simultaneously foster higher-order thinking and environmental literacy within English language instruction in higher education.

The novelty of this study lies in three interrelated contributions. First, this research introduces ECO-STEP (Ecological, Critical, Technology Enhanced Pedagogical Strategy) as an innovative Eco-ELT teaching model, operationalized through four sequential instructional stages: Sensing, Thinking, Engaging, and Producing (STEP).

Sensing involves students' initial exposure to authentic environmental issues through multimodal and technology supported resources, promoting awareness and contextual understanding. Thinking engages students in higher-order cognitive processes, such as analyzing environmental problems, evaluating evidence, and constructing arguments. Engaging emphasizes collaborative inquiry, discussion, and reflection, enabling students to negotiate meaning and deepen interdisciplinary understanding through language use. Producing requires students to generate language-based outputs such as critical essays, presentations, digital projects, or solutions to environmental problems demonstrating both critical thinking and environmental literacy.

Unlike previous Eco-ELT practices that treat environmental topics merely as contextual or thematic materials, ECO-STEP deliberately

positions environmental content as a cognitive and analytical driver for language learning, aligning Eco-ELT with higher-order learning objectives.

Second, this study advances a clear interdisciplinary pedagogical framework that integrates English language learning, critical thinking, and environmental literacy. Through the ECO-STEP, language functions not only as a communication skill but also as a tool for reasoning, argumentation, and ecological problem-solving. This interdisciplinary integration reframes Eco-ELT as a holistic pedagogical approach for developing cognitively critical and environmentally literate learners in higher education.

Third, this research extends Ives' Eco-ELT theoretical framework by incorporating technological integration as a core pedagogical component. While Ives' framework emphasizes material, experiential, cognitive, emotional, and philosophical dimensions, this study argues that technology plays a mediating and transformative role in Eco-ELT implementation. In ECO-STEP, digital platforms, online environmental texts, collaborative tools, and reflective technologies are systematically embedded across all STEP stages, resulting in a technology-enhanced Eco-ELT framework that responds to the demands of 21st-century higher education.

Furthermore, by utilizing co-occurrence analysis and data visualization techniques as a theoretical and empirical foundation, this study moves beyond bibliometric mapping to inform instructional design and pedagogical decision-making. The findings are expected to provide empirical evidence of how Eco-ELT, when implemented through the ECO-STEP (Sensing, Thinking, Engaging, Producing) model, leads to measurable improvements in students' critical thinking skills and environmental literacy.

In sum, this research contributes novelty by: (1) developing ECO-STEP as an innovative, technology-enhanced Eco-ELT instructional model based on the stages of Sensing, Thinking,

Engaging, and Producing; (2) extending Ives' Eco-ELT theory through the integration of technology as a core pedagogical component; and (3) advancing an interdisciplinary Eco-ELT framework that systematically connects language learning, critical thinking, environmental literacy, and technology an area that remains underexplored in existing Eco-ELT research, particularly within higher education contexts.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1. Previous Research Overview

Some previous researchers conducted studies on the Eco English language teaching approach for enhancing critical thinking skills, environmental literacy, and incidental vocabulary in higher education. In this part, the researcher reviews some related studies in the same field concerning the Eco English Language Teaching Approach. It investigates a variety of subjects learned or the methodology used.

The first study was written by Vinícius O. Souza (2015: 3), entitled "*A Case for an Ecological Approach and Against Language Commodification in ELT*". By using the descriptive qualitative method as research design, he found that this paper has attempted to present a case for an ecological approach to teaching in light of the current demand for an alternative that is capable of redressing the low proficiency levels of English as a foreign language, as exhibited these days by many developing countries. The second main thrust of the present study involved demonstrating how the above misalignment may have had its roots in language commodification, a practice commonly associated with what has now become a conventional school-business partnership.

This research has a similarity to the present research conducted by the researcher. The current research also uses a qualitative method to analyze the Ecological Approach in English Language Teaching. The difference between her research and this study is that she argues that this can be best accomplished by adopting an ecological approach to teaching that promotes language learning as emergent and socially situated phenomena, two concepts largely neglected by the current teaching method, and this study analyzes cognitive or cooperative learning in constructing learners' knowledge or understanding of reality.

Secondly, the research was conducted by Pustika, R (2019: 2) entitled "*The Effect of Reading Literacy in The EFL Classroom on the Critical Thinking Skill And Interest In Reading English Of The Students Of High Schools Using Ex-Post Facto Research*" as the research design, she found that the results of this research show that reading literacy in the EFL classroom affects high school students' critical thinking skill and interest in reading English at a significant value on Wilk's Lambda test of 0,006. In addition, after it was analyzed separately by using the test of the between-subject effect, reading literacy in the EFL classroom affected high school students' critical thinking skills by 73.1% and their' interest in reading English by 65.5%. Previous studies have focused on ex-post facto research in the study design, and this study used a mixed type of study. For quantitative research, questionnaires and observations are used.

The third of the research titled "*Examining the Effects of Eco Literacy on Knowledge, Attitudes, and Behavior through Adiwiyata Environmental Education for Indonesian Students*" examines the influence of ecological literacy on students' knowledge, attitudes, and behaviors through the Adiwiyata Environmental Education in Indonesia. This research uses a descriptive approach and regression correlation testing as its research method. The results show that there is a significant relationship between knowledge and attitudes towards student behavior, both inside and outside of school. Additionally, a significant difference was found between schools based on the Adiwiyata program and those not based on the Adiwiyata program in terms of students' knowledge, attitudes, and behaviors. The findings highlight the importance of the Adiwiyata program in shaping pro-environmental behavior among students. These findings can be used as a basis for developing and expanding environmental education programs in other schools. By showing that Adiwiyata-based schools have better environmental knowledge, attitudes, and behaviors, this research emphasizes the need

to adopt a more holistic and environmentally-based approach in the national education system.

In addition, Bulan, et.al., (2025) conducted a research entitled "*Ecological Issues in English Language Learning: A Study of Senior High School Students' Perceptions in Dompu Regency*". This study investigates how high school students in Dompu Regency perceive the integration of environmental issues into English language education. The findings reveal strong student support for incorporating ecological themes into English learning. Approximately 64.5% of participants expressed a desire to learn English in ways connected to real-life situations. Additionally, 82.2% showed significant interest in exploring environmental issues, while 68.8% indicated they wanted to learn how to care for the environment through English-based activities. These results suggest that students do not view English merely as a subject centered on grammar or academic skills, but rather as a medium for engaging with meaningful and globally relevant issues.

Overall, the studies highlight the importance of a holistic and contextual approach in education, both in teaching English and environmental literacy. The first study emphasizes the need for an ecological approach to teaching English in response to low proficiency levels in many developing countries. The second study shows that reading literacy in English as a foreign language has a significant impact on high school students' critical thinking skills and interest in reading English. Meanwhile, the third study highlights the influence of ecological literacy on students' knowledge, attitudes, and behaviors in the context of Adiwiyata Environmental Education in Indonesia.

These studies underscore the need for a more holistic, contextual, and reality-based educational approach. Their findings provide a foundation for the development of better and more effective education in addressing global challenges, including enhancing critical thinking skills, strengthening literacy, and fostering environmentally conscious attitudes.

This research also opens up opportunities for further research to explore more deeply the mechanisms and effective strategies in environmental education. The eco-English language teaching approach is a relatively new discipline; all previous studies derived from some articles in this study, the researcher used the Vos viewer application to learn more about previous studies related to this study. VOS viewer is a software tool for building and visualizing bibliometric networks. For example, these networks may include journals, researchers, or individual publications, which can be constructed based on citations, bibliographic coupling, co-citations, or co-authorship relationships. VOS viewer provides for the introduction of a thesaurus file that may be used for data cleaning by integrating different forms of phrases, author names, and test tubes. The researcher used the VOS viewer 1.6.18 version for this study. In addition to using the Vos viewer application, the researcher also uses the Tableau Public application to help visualize data more efficiently. Table Public is a free service that lets anyone publish interactive data visualizations to the web. Here are 51 articles taken from Google Scholar, Scopus, and the Web of Science to be analyzed through the Vos viewer application.

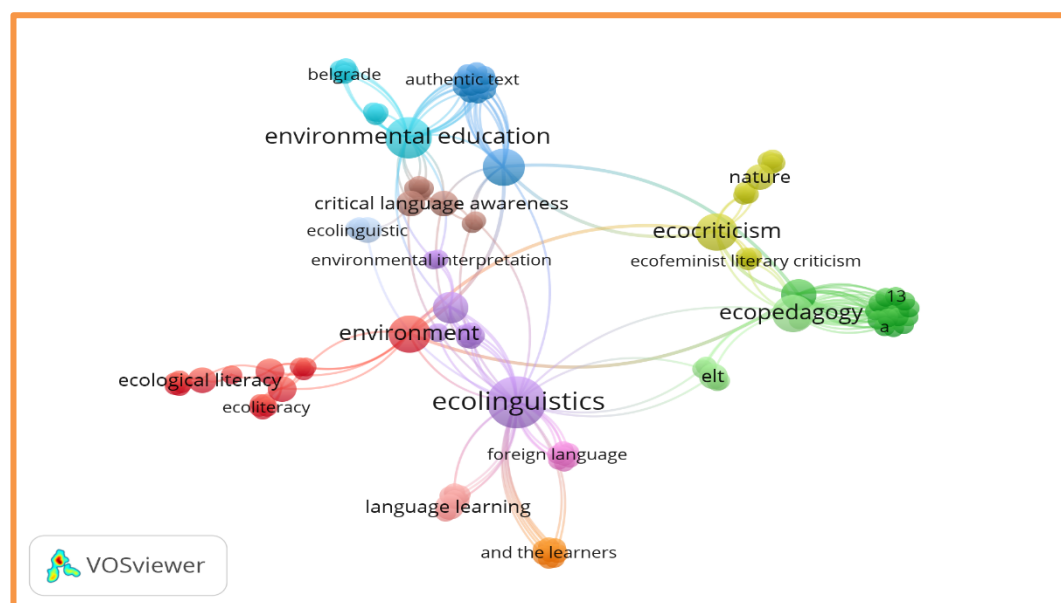


Figure 1. Vosviewer Analysis

In this part, the researcher studies the content by analyzing the distribution of keywords. The keywords co-occurrence network map, the top 10 keywords in the Eco English language teaching approach publications, the keyword density visualization map, and the keyword timeline view will be shown. Keyword co-occurrence can effectively reflect the research hotspots in the discipline fields, providing additional support for scientific research. Based on the visual data above, the minimum number of occurrences of a keyword is 2 of the 194 keywords; there are 12 clusters that meet the threshold. The total strength of the co-occurrence's links with other keywords will be calculated for each of the keywords. The keywords with the greatest total link strength will be selected. Figure 1 shows that 12 central clusters can be identified from 120 items. The largest cluster (red color) includes eighteen items such as attitude, ecoliteracy, ecological literacy, ecological advanced city, language, education, English, environment, environment literacy, green, eco-green, lexicon, linguistics ecology, model, pedagogy, reading, transition, and reading of ecolinguistics. It covers a rich diversity of theoretical approaches. The keyword used in this research article is Eco ELT, while the smallest cluster (green color) includes four items such as eco ELT, syllabus, eco for teaching, and teaching materials.

According to a study, Web of Science is a superior database to Scopus. Web of Science's search results, for example, automatically display the most popular articles in the field thanks to a feature known as 'hot paper,' which is still missing in Scopus. According to this recent study, Scopus has that feature as well. As a result, WoS and Scopus both have excellent databases.

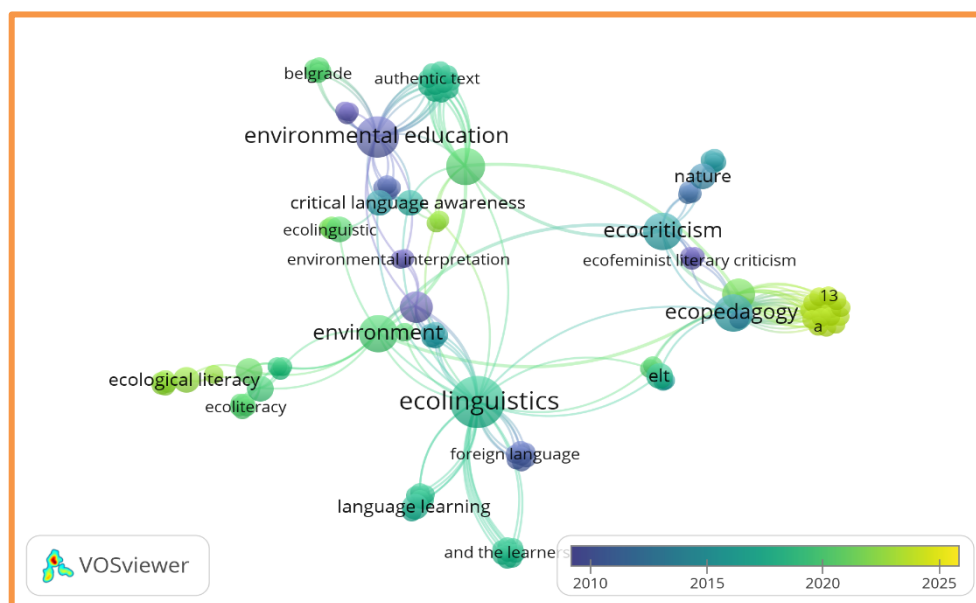


Figure 2. The Distribution of Eco ELT Using the Keywords by Years

Based on the data above, it can be said that Eco-ELT studies have started to increase in 2020. The review of previous research revealed that Eco ELT approach mapping had been carried out a lot; this shows the number of co-words about Eco ELT approach in figures and clusters. However, no research has been found that conducts mapping based on co-occurrence analysis of the influence of the Eco English language teaching approach on enhancing critical thinking skills and environmental literacy. Therefore, the researcher concluded that based on data visualization through this Vosviewer, researchers analyzed many research titles related to Eco ELT variables. Still, there needs to be an analytical study of the Eco English language teaching approach for enhancing critical thinking skills and environmental literacy.

2.2. Theoretical Background

2.2.1. Eco ELT Approach

a. Definition of Eco ELT Approach

Language ecology began in the 1970s, when Einar Haugen (1972, 2001: 91) developed the paradigm of "Language ecology," arguing that the relationship between language and the environment is limited to a lexical set. Language exists in the mind of humans and the language community,

and it is used in real life by speakers in society. There are several parameters of Ecolinguistics including the relationship between language and environment interrelation (Interrelationship), physical and sociocultural environment, and diversity. Language exists in the brains of humans and the language community, and it is used in real life by speakers in society. So, there is a psychological (psychiatric) environment and a social environment. Ecology is employed as a basic science in comprehending interactions in the environment; hence, Ecology may be defined as a branch of the scientific discipline of biology concerned with the interaction of living things with other living things as well as with the surrounding environment Garner (2005: 91).

Eco ELT is an approach in TEFL literature which according to Hussain (2018) mainly aims to propose environment knowledge and skills in the classroom to make the learners work on the motto, "We are going to make the world a better place". This eco-related research area was guided by different studies Setyoati & Widiati (2014: 21-15). For instance, conducted a study that aimed at integrating environmental education into EFL classroom. The study concluded that the concept of greenery has a value in inspiring the pupils to be motivated to protect the ecosystem that they live in. Similarly, Riegerova (2011: 34) proposed practical ways of integrating environmental education in the English language classroom. The study aimed to encourage the learners to read texts regarding the environment; write about it and learn the vocabulary on it. The study proposed many other explicitly aspects that can be practiced in the setting of the classrooms and the practices of both the teachers and students.

The ecological approach follows a different flipped learning perspective, which is, moving from the social umbrella to the inner psychological mindset. In this view, Lier V (2010: 5) stated that mind and consciousness develop as a result of social activity in the world, and learning consists of achieving more complex, more effective ('better' would of course be rather loaded terminology) activity in the world". This

approach disagrees with the notion of learning emergence to the head, rather, it relates to the interaction with the environment. It views language as an instrument for world projection. It refers to using an ecocriticism approach in teaching environmental topics in ELT, employing any printed and digital literary works. Therefore, the “Eco” in the Eco-ELT represents the ecocriticism approach. This new operational definition of the Eco-ELT referring to the use of ecocriticism approach possess problems, particularly in practical implementation. It restricts the scope and flexibility of environmental teaching and research in ELT. Attempts at the teaching and research about environmental issues in ELT are diverse; they are not exclusively devoted to using the ecocriticism approach.

b. Eco-ELT Bases Social Constructivism in Second Language Learning and Acquisition

Eco-ELT is firmly rooted in the social constructivism theory of second language learning and acquisition. Social constructivism emphasizes the roles of social interaction and cooperative learning in constructing learners’ knowledge or understanding of reality; this differs from cognitive constructivism, which concerns learners’ capability to build reality Brown (2014: 24). In the context of language learning and acquisition, the development of English proficiency among learners is not solely dependent on their internal capabilities. It also relies on external factors that can be facilitated through interactions and cooperation. These interactions and cooperative efforts should not only involve humans such as English teachers, classmates, parents, and native English speakers, but also non-human elements like English textbooks and learning materials. All these elements, both human and non-human, plays a crucial role in providing inputs for English learners’ language acquisition and learning process Brown (2014: 24).

Eco-ELT offers a wealth of high-quality external factors for language learning and acquisition. Authentic environmental texts are ubiquitous. They serve as valuable resources of learning materials for students to

interact with and become sources of students' language learning and acquisition. They provide students with comprehensible inputs in English, facilitating their understanding of grammar, vocabulary, and sentence structures within meaningful contexts. Furthermore, the environmental activities conducted in Eco-ELT classes serve as avenues to enhance learners' English language skills (listening, reading, speaking, and writing). Examples of such activities include critical reading, environmental nature writing, eco-debates, eco-drama, and so forth which can be modelled as non-interventionist or interventionist approaches to encourage meaningful English language acquisition and usage. Additionally, information and communication technology (ICT) can be effectively integrated into the Eco-ELT practices using environmental news, blogs, YouTube Videos, eco-media, and other digital resources. These ICT tools can serve as catalysts for improving language learners' proficiency in English. In short, Saiful (2023: 381) states that Eco-ELT offers vast possibilities for language learning, acquisition, and use to flourish and thrive.

Epistemology pertains to the foundation of scientific knowledge, the constituents of the "being" Rokhmah (2021: 174). Thus, this section discusses the underlying principles of Eco-ELT, which is an interdisciplinary field combining environmental studies, second or foreign language learning and acquisition, and education. The present article presents four bases of Eco-ELT which generally can be broadly categorized in two parts illustrated in Figure 2.3: the language and the ecology. The language aspect includes social constructivism in second language learning and acquisition, while the ecology aspect encompasses environmental humanities, education for sustainable development, and Eco pedagogy.

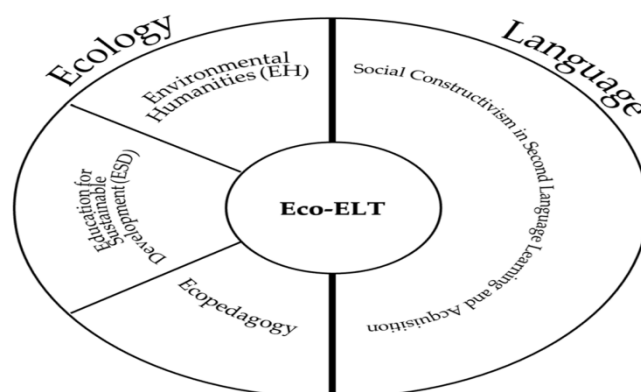


Figure 3. Eco-ELT Bases Social Constructivism in Second Language Learning and Acquisition

According to Hubbell & Ryan (2021: 1-3) Environmental humanities, Eco-ELT is aligned with the nature and mission of environmental humanities, aiming to establish itself as an inclusive and interdisciplinary concept. environmental humanities (EH) is an interdisciplinary field of study that researches environmental problems and the meanings of a good life for all living beings through the lens of the arts and humanities. Due to its interdisciplinary nature, noted by Rodewald, (2022: 222) EH integrates various scholarly disciplines including philosophy, arts, media studies, literature, film, history, anthropology, theatre, and so on, which revolve around sustainability and nature research Rodewald, (2022: 222). These disciplines collaborate to address global environmental crises that cannot be solely solved by the sciences.

Education for sustainable development (ESD). The Eco-ELT movement also aligns with the principles and objectives of education for sustainable development (ESD). ESD is rooted in the implementation of sustainable development acts in education. It is also interwoven with sustainable development goals (SDGs) and integrates and balances out three sustainable development (SD) pillars, including economic, social, and environmental Villanen (2014: 4) in every educational-related action. The focus works of ESD are also improving the quality of the environment

for sustainability Anyolo et al., (2018: 65) and “creating new perspectives on the habitat through the prism of interrelations among nature, economy and culture” Suleimenova & Ivanova (2018: 47).

Ecopedagogy, Eco-ELT is also grounded based on the principles of ecopedagogy, which aims to dismantle educational systems that contribute to socio-economic inequality, planetary unsustainability, and anthropocentric dominancy over nature. Following the Ferarian principle, as articulated by Misiaszek, (2022: 1253) ecopedagogy encourages a holistic view of the world, considering the Earth and all entities as interconnected; its goal is to provide students with a deeper understanding of environmental violence. In addition, ecopedagogy challenges the prevailing models of ESD and environmental education (EE), which prioritize the “development” to get “progress” of sustainability, yet, deprioritizing environmental well-being, neglecting the power of “reading” social injustices which are the sources of environmental violence and the politics of development frameworks.

The axiology: what are the significances of Eco-ELT? Axiology deals with the values and benefits derived from scientific knowledge. Eco-ELT's goals are to make English learners linguistically and intellectually developed, socially and emotionally shaped, and create “green” moral English teachers who are pro towards environmental sustainability. Linguistics development does not mean ecological teaching in ELT benefits only for enhancing students’ linguistic competence but also for developing students’ English language skills: listening, speaking, reading, and writing. The word “linguistically” is used to maintain consistency with other descriptive terms such as “intellectually”, “socially”, and “emotionally”, and to facilitate ease of pronunciation and memorability. This language competence and skills further contribute to students’ ability to communicate. Consequently, Eco-ELT can serve as a platform for the enhancement of students’ communication skill Saiful (2020: 65).

c. Eco-ELT practice: principle

To achieve environmental sustainability in Eco-ELT practice, the present conceptual article provides a framework of practice for Eco-ELT teachers, curriculum designers, and policymakers. The framework is developed based on the concept of leverage point system of nature connectedness proposed by Ives et al. (2018: 1392). The leverage point system helps inform necessary sustainability interventions benefit for building humans' relation to nature. Eco-ELT adopts this framework to enhance and strengthen humans' connection to the Earth and its contents to solve ecological catastrophes. The framework is visually presented in Figure 3 and further elaborated in the subsequent paragraphs.

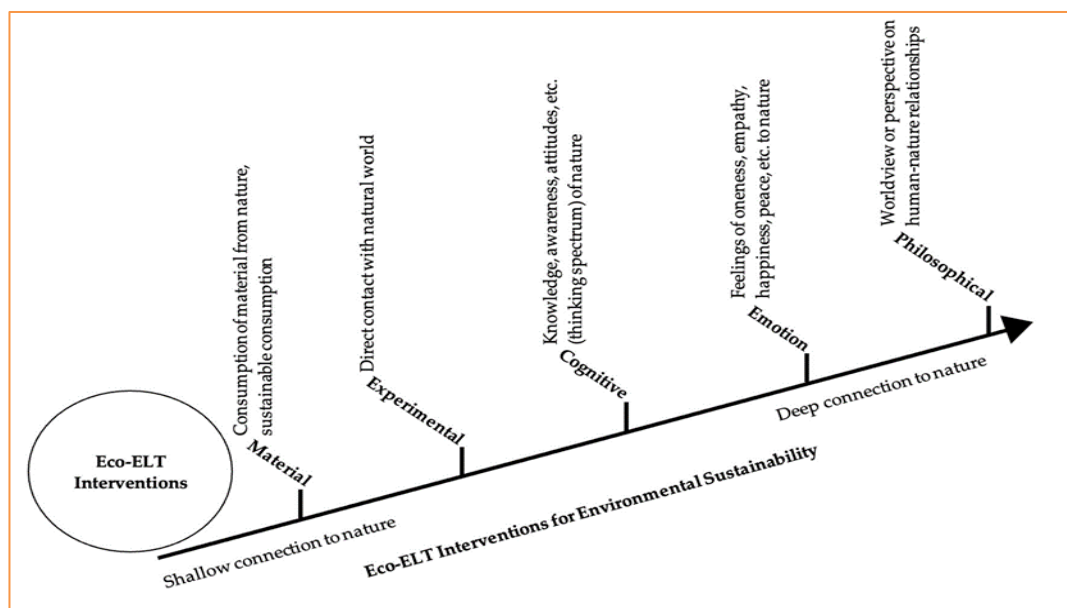


Figure 4. Eco-ELT framework of practice

Figure 4 illustrates the mechanism of Eco-ELT interventions to reconnect people to nature, bringing people from a shallow to a deep connection to Earth Ives et al., (2018: 1392). This intervention system is designed to be practical and can work in concert: interacting with one another Ives et al., (2018: 1394). In order to ensure that Eco-ELT movements have a significant impact on environmental sustainability, Eco-ELT teachers, curriculum designers, and policymakers have the

opportunity to select and design Eco-ELT activities or programs that align with these five intervention types.

1. The first is “material,” which involves consuming natural materials or goods. Eco-ELT intervention can be in activities that encourage English students to comprehend and do sustainable consumption.
2. The second is “experiential,” which focuses on direct interactions between humans and the natural environment. Eco-ELT intervention can be devoted to designing activities that immerse students and teachers in direct contact with the natural environment.
3. The third intervention type is “cognitive,” which involves enhancing humans’ knowledge, awareness, or attitudes to nature. Eco-ELT intervention in this category can consist of activities that aim to develop students and teachers’ awareness, knowledge, and attitudes to nature.
4. The fourth type is “emotion,” which focuses on interventions that work on the emotion of humans toward nature, such as feelings of oneness or empathy for nature and its contents. Eco-ELT intervention can be in the forms of activities that shape or develop students’ feelings of oneness or empathy for nature and its contents (all living and non-living organisms). Emotions encompass wide range, including feelings of happiness, appreciation, peace, and so on, and Eco-ELT intervention can also focus on nurturing these emotions.
5. The fifth type is “philosophical,” which revolves around humans’ worldviews or perspectives about humans’ relationship to nature. Eco-ELT intervention could involve activities that shape, develop, or transform students’ worldviews or perspectives about their relationship to nature. It is important to emphasize that the human-nature relationship should not be based on master-servant dynamic but rather on equality and egalitarianism.

The implementation of those aspects in language learning should be expanded due to the needs of curriculum outcomes. One that, how to make the students to be more active in the learning process by making

such collaboration in terms of collaborative learning or cooperative learning so that students can interact with others to improve their ability in communicating the target language. To facilitate language acquisition, the students are expected to interact each other during the learning process. In addition, not only interaction with students and teachers, interacting with technological tools is needed since the improvement of the quality of language learning. Digital technologies integration in Dockstader's (2008) definition was the adoption of digital technologies to improve learning activities by allowing learners to do assignments on the computer instead of on paper.

In conclusion, the researcher will develop Eco ELT Approach that consist of five aspects (Materials, experimental, cognitive, emotions, and philosophical) by adding two components which is need to the learning process such social interaction and technology integration. By integrating these two components, it is expected to give contribution to the language acquisition of the students and facilitate meaningful learning activities.

2.3. Critical Thinking Skills

a. Definition of Critical Thinking Skills

Critical thinking is an essential skill that should be taught in the classroom. Mastering this skill is important in order to face complex global challenges and develop their way of thinking logically Masduqi (2011: 185). This skill can affect positively the way students thinking about the reason for taking action and how is the risk of their actions. Critical thinking can be developed through active learning which needs higher-order thinking skills and collaboration. In addition, it is also the key to prepare students to study at university.

Critical thinking skills as a process of intellectual discipline that is actively and skillfully conceptualized, applied, analyzed, synthesized, and evaluated the information that had been collected or gathered Elder (2012 as cited in Hasan, 2013: 852) defines. Critical thinking skill is a skill that

brings precision to the way someone thinks and works to be more accurate and specific in noting what is relevant and what is not Junining (2016: 870). Critical thinking is reasonable and reflective thinking aimed at deciding what to believe and what to do. Critical thinking, which involves reasoning, is the process the reader uses to determine which interpretations are consistent with the textual evidence and background knowledge (Commeyras, 1990: 7).

To be acknowledged as critical thinkers, the students need to activate their background knowledge. To have a big amount of background knowledge, the students should read a lot. By reading, the students may gain some knowledge or experience that happen to others. These reading activities require the students to have intellectual discipline meaning that the students do not only recall or understand about certain knowledge, but they also have to apply, analyses, synthesize, and evaluate certain knowledge. If the students activate their background knowledge and intellectual discipline, the students will accurately decide to believe in certain information or not.

Facione (1990) describes critical thinking is a close form with higher-order thinking such as problem-solving, decision making, and creative thinking. The process to find out the core of problem and how to resolve it is called problem-solving. Creative thinking is a process of creating new innovation about insights, approaches, perspectives, ways of understanding, and conceiving of things. Decision making can be described as the process of making decisions on through organizing and reorganizing the information into a variety of choices Gelatt (1989: 23). Critical thinking can help people face the irrational opinion or mislead justification. It can support rational independence, rational self-determination, objective justification, and reliable investigation of a very wide issue and interests. In other definition, Larson (2014: 14) describes critical pedagogy as a teaching process with a student-counter approach that focuses on problem-solving and engages students in discussion.

In educational context, Masduqi (2011: 185) argues that critical thinking skills play significant roles in learners' academic achievements and their dynamic life of workforce after graduation. Critical thinking is simply asking yourself what action will you take. Why do you take that action? What is the result after you do the action? How you take responsibility for your actions? And many questions in your head that you want to ask after you receive some information.

Characteristics of critical thinkers. Critical thinkers are those who raise vital questions and problems, formulate them clearly and precisely, gather and assess relevant information, use abstract ideas to interpret it effectively, come to well-reasoned conclusions and solutions, test them against relevant criteria and standards, think open-mindedly within alternative systems of thought, finally communicate effectively with others Paul and Elder (2008: 23).

b. The Importance of Critical Thinking Skill

After portraying the definitions of critical thinking skills proposed by some experts, therefore, having this skill is beneficial in terms of providing a useful tool for problem-solving and project management, bringing greater precision and accuracy to different parts of a task. Acquiring critical thinking skill could save time since it helps to identify the most relevant information more quickly and accurately Junining (2016: 870). Smith and Szymanski (2013: 1) believe that critical thinking skills are necessary to succeed in higher education or in the workplace.

Thinking critically will boost creativity and enhance the way you use and manage your time and critical thinking not only describes the ability to think in accordance with the rules of logic and probability, but also the ability to apply these skills to real-life problems, which are not content-independent. Critical thinking can provide the students with a more insightful understanding of themselves Karakoc (2016: 1). It will offer them an opportunity to be objective, less emotional, and more open-minded as

they appreciate others' views and opinions. By thinking ahead, the students will gain the confidence to present fresh perspectives and new insights into burdensome concerns.

Critical thinking requires the maximum exertion of intellectual capability and that students and teachers alike find critical thinking discomforting because it requires personal reflection. Most definitions of critical thinking emphasize a heightened awareness of multiple points of view and context, as well as an evaluation of one's own thought processes before reaching a conclusion. Utilizing activities to enhance critical thinking, students are better able to understand why something has occurred as opposed to just understanding what has occurred. This deeper understanding allows the students to better analyse the circumstances surrounding the occurrence and differing viewpoints about the occurrence.

Some benefits above show that it is important for the students to have critical thinking skill. Once they have critical thinking skill, they will be more selective in perceiving the information. They will not believe in certain information easily. Whenever they hear or read certain information, they will look for some related information. Some related information that they find will assist them to believe that information or not.

c. The Indicator of student's critical thinking skills

Critical thinking skill is essential for the students since it allows students to select pieces that are most appropriate and valuable for their purpose. This critical thinking skill is high on the agenda of development of foreign language learners in the information era, especially in Indonesia where conformity to group, teacher-centred instructions, rote learning and memory-based learning have been thought to constrain Indonesian students in exercising critical thinking.

Critical thinking is a kind of thinking skills oriented to Critical thinking and creative thinking related to Higher order thinking skills. There are five indicators indicate Critical thinking ability, which is an understanding

problem well, changing problem into mathematics symbol, creating a strategy to solve the problem, concluding, and explaining the obtained conclusion. The last capability is creating a strategy in the highest level of higher-order thinking skills. Table 2.1 explains about four indicators and sub-indicator of Critical thinking skills, and Table 2.1 explains the indicator of Critical thinking skills in Astronomy. Ennis shared six basic elements of critical thinking through approaching FRISCO (Focus, Reason, Inference, Situation, Clarity, and Overview). The first step of critical thinking, according to Ennis (2011: 2) are:

- a. Focus. Introducing some situations, we must understand what to discuss, main point, issue, what to ask or what to say. To hold it, we must focus on it because if we do not, we will waste time. Ennis define it as “the focus is ordinarily the conclusion.”
- b. Reason. Supporting the conclusion, we must have supporting reasons and decide the acceptable reasons. This is accomplished before we value the argument.
- c. Inference. Assessing the inference is different in assessing reason. We must assess the acceptable and sufficient to make a decision. Yet, inference gets ambiguity, more than one meaning, as Ennis said:” Sometimes the word inference is used to mean conclusion so that the conclusion of an argument would then be an inference.”
- d. Situation. When thinking focuses on trust and takes a decision, it needs to supporting situation that includes involving other people, another side. The environment is in it, both the physical and social environment. It is not only thinking activity but also the meaning of what to hold and to assess by the thinker.
- e. Clarity. The most important thing in our writing and speech is clarity of what we said. We must understand what to say, and the other people understand what we say. By delivering a clear and explicit message, we will avoid ambiguity. And clarity is the most important element in FRISCO.

f. Overview. In the overview, the thinker verifies about what to think.

Table 1. Indicator of Students' Critical Thinking Skills

Critical Thinking Skills	Indicator	Sub-indicator
Focus	focus on the question	(a) Identify or formulate (b) Questions (c) Identifying or formulating criteria for considering possible answers. (d) Maintaining a state of mind
Reason	Analysing arguments	(a) Identify the conclusion. (b) Identify the reason (cause) stated (explicit). (c) Identify the reason not stated. d. Find / find similarities and differences. (d) identify the relevance and irrelevance. (e) Find or find the structure of the argument. (f) Make a summary
	Ask and answer challenging questions	(a) Why? (b) What's the point? (c) What does that mean? (d) What is the example? (e) Isn't the example it is? (f) How does it apply to the case? (g) What difference is it causing? (h) What is the fact? (i) Is what you're saying true?

Inference	Making deductions and considering the deduction results	(a) The logical group (b) The logical condition (c) the interpretation of the statement / the statement of interpretation
	Making induction and considering the inductive outcome	(a) Make generalization (b) Submit conclusion hypothesis (c) Investigation Criteria based on assumptions
	Create and determine considerations	(a) Background facts (b) Consequences (c) Application of principles (d) Consider alternative (e) Consider and touch
Situation	Defining a term, considering a definition	Making a simulation
Clarity	Resolving an action	(a) Uncovering problem (b) Selecting criteria to consider the solution that may (c) formulate an alternative enable (d) to resolve things that will be done temporarily. (e) Monitor
	Interacting with others	(a) Funny (b) Logical strategy (c) Rhetorical Strategy (d) Presentation

Overview	Considering the credibility (criteria) of a source	<ul style="list-style-type: none"> (a) Member (b) No conflict of interest (c) Resource Agreement (d) Reputation (e) Use available procedures (f) Knowing the risk to reputation (g) Ability to give a basis (h) Habit Be careful.
	Observing and considering the results of observations	<ul style="list-style-type: none"> (a) Leads to little suspicion (b) Short intervals between observation and reporting (c) Reported by self-observers (d) Noting things desired. (e) Reinforcement (f) Probability of reinforcements (g) Good access conditions (h) Use Competent technology (i) Observer satisfaction that credibility.

(Ennis Robert, 2011)

2.4. Environmental Literacies

a. Definition of Environmental Literacies

The term “literacy” first appeared in the late nineteenth century. It was originally exclusive to the fields of reading and writing and referred to the ability to read and write Stibbe (2009: 2). It was thus terminology that first pertained to linguistics. Since the Industrial Revolution, usage of the term “literacy” has gradually expanded. In the 1960s, a literate citizen was thought to have knowledge and capability in a particular field or fields, and to be able to take effective action on many complex issues facing society. Therefore, the term “literacy” has expanded to include knowledge of

specific disciplines or problems, and it can now refer to one's level of knowledge and capability in such fields. The terms "environmental literacy" and "ecological literacy" have since appeared in ecological research. Ecological literacy evolved from environmental literacy, and these two concepts are inseparable.

Literacy is an individual's ability to read, write, speak, count, and solve problems at the expertise level needed in work, family, and society. This notion conforms to Baynham's (1995: 73) opinion that literacy is an integrated form of listening, speaking, writing, reading, and critical thinking capabilities. Literacy also bears the meaning of social practice and relationships related to knowledge, language, and culture. Therefore, literacy involves a series of learning, which allows individuals to achieve knowledge, develop knowledge, and fully participate in limited and extensive communities (UNESCO, 2005: 13).

The term literacy has become a code word for more complex views of what is involved in reading and writing. A literate person can, therefore, become competent and knowledgeable in specialized areas Barton, (2007: 7). Barton defines literacies as multiple, overlapping, and diverse in terms of people have different literacies which they make use of associate with different domains of life. These differences are increased across different cultures or historical periods.

The term "environmental literacy" was first used by Charles Roth in research on the topic of understanding environmentally literate citizens. But attention to the issue began in the early 1960s. Rachel Carson questioned the abnormal phenomena of the natural environment in America in her book, "Silent Spring" Carson (1962: 7). At present, the most widely used definition of environmental literacy is the one proposed by the NAAEE, which indicated that environmental literacy includes awareness and concern about the environment and environmental issues, as well as knowledge, skills, and the motivation to solve current related problems and prevent new problems. Although this research does not

discuss the content and framework of environmental literacy directly, environmental literacy is a broader concept. Ecological literacy is a secondary concept, and it is also the development of the connotation of environmental literacy. Ecological literacy provides the necessary ecological foundation for environmental literacy.

Environmental literacy is a relatively abstract concept, and scholars differ in understanding the concept and framework of ecological literacy. After Paul Risser pointed out in 1986 that America had certain shortcomings in scientific literacy, especially ecology-based literacy, many researchers began discussing the concept of ecological/ environmental literacy Huang and Zhao (2019: 7). Coyle (2005: 13) proposed a visual pyramid to discuss personal ecological literacy. The pyramid is composed of three levels from bottom to top: environmental knowledge, environmental attitudes, and environmental literacy. Environmental literacy is at the top of the pyramid because it is developed through personal environmental knowledge, values, and actions taken in response to environmental problems. Other researchers Bruyere (2008: 9) have divided environmental literacy into different categories: knowledge, attitudes, and behavior; or knowledge literacy, ethics literacy, environmental emotional literacy, and environmental behavioral literacy.

Despite these complexities, environmental literacy continues to be widely used by practitioners, policymakers, funders, and other stakeholders. Numerous programs articulate environmental literacy as a primary outcome, funding agencies describe it as an area of emphasis, and researchers endeavor to operationalize the concept holistically, as well as in elements. As such, this series of briefs attempt to highlight some areas of discussion related to environmental literacy grounded in the research literature, with the intention of sparking dialogue among researchers and practitioners as well as providing common background.

b. The Goals of Environmental Education

In this section we discuss various methods/pedagogies used in the field of environmental education. Environmental education, like science education, is interdisciplinary and offers a variety of learning strategies, which are determined by learning resources, learning time, learning space, learning curriculum, and student attributes. These differences all affect education approaches in some way. We briefly describe outdoor education, classroom education, and nature-centered education.

Environmental knowledge is very important because it helps individuals in gaining a basic understanding of the environment and the problems associated with it. The results of this understanding help to arouse attention among individuals, thus creating environmental attitudes in the form of sensitivity, a sense of concern, and a desire to act on the surrounding environment. In addition, the attendees of the Tbilisi Conference in 1977 endorsed goals for environmental education into five categories UNESCO (1977: 13). They are:

- a. awareness: to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.
- b. Knowledge: to help social groups and individuals gain a variety of experiences in and acquire a basic understanding of the environment and its associated problems.
- c. Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivations for actively participating in environmental improvement and protection;
- d. Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems; and
- e. Participation: to provide social groups and individuals with the opportunities to be actively involved at all levels in working toward resolving environmental problems.

Table 2. Environmental Education Goal Levels

Goal Level 1	<p>Knowledge and Ecological Foundation</p> <p>To provide the receiver with sufficient knowledge in ecology, which will permit him/her to eventually make ecologically sound decisions with respect to environmental problems.</p>
Goal Level 2	<p>Conceptual Awareness of Issues and Values</p> <p>To guide the development of conceptual awareness how individual and collective actions might influence the relationship between quality of life and the quality of the environment and how these actions resulted in environmental issues, which must be resolved through investigation, evaluation, values clarification, decision-making, and finally, citizenship action.</p>
Goal Level 3	<p>Issue Investigation and Evaluation</p> <p>The development of the knowledge and skills necessary to permit receivers to investigate environmental issues and evaluate alternative solutions for remediating these issues. Similarly, values are clarified with respect to these issues and alternative solutions</p>
Goal Level 4	<p>Environmental Action Skills and s necessary for receivers to take positive environmental action for the purpose of achieving and/or maintaining a dynamic equilibrium between quality of life and that of the environment</p>

Hungerford et al. (1980) and revised by Wei-Ta Fang: 2011: 34)

Hungerford et al. (1980) and revised by Wei-Ta Fang (2011: 34) environment literacy is “reflected by human beings who have the knowledge and ability to communicate the need for environmental action strategies and be willing to use these skills and knowledge to develop and implement strategies to remediate and/or address environmental issues.” The big levels of the environmental literacy are listed as follow:



Figure 5. Environmental Education Goal Levels

Ecological awareness is another important part of the framework of Environmental literacy in linguistic ecology. Thus, we propose the following five factors: (1) knowledge; (2) awareness; (3) ethics; (4) emotional; and (5) behavioural. In essence, ecological literacy refers to the acquisition and dissemination of knowledge, enhancing awareness of ecological protection, and ultimately guiding the sustainable development of behaviour to achieve a higher level of ecological literacy. In other words, the five dimensions of environmental literacy comprise a unified whole, and each of them is almost equally important theoretically (Figure2.5).

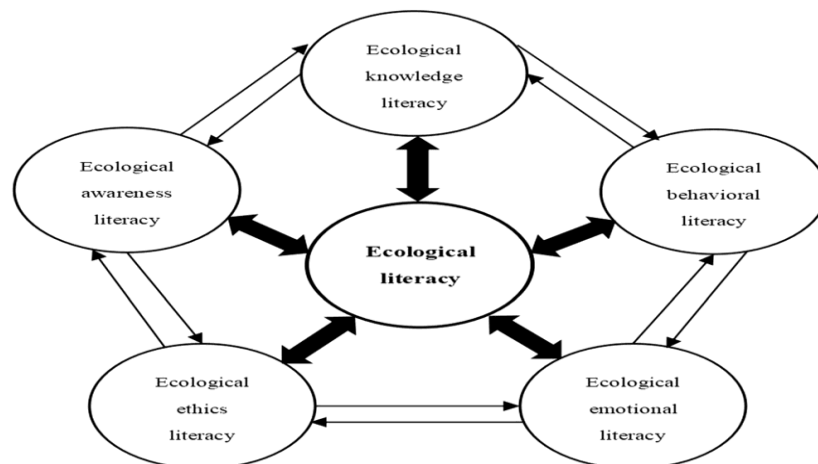


Figure 6. Formation Process of Literacy

At this time environmental literacy models were the subject of research and new models were proposed.

2.5. Conceptual Framework

The conceptual framework of this study informs and guides all methodological decisions, ensuring coherence between theoretical assumptions, research design, data collection instruments, and analytical procedures. Grounded in eco-critical pedagogy, the framework conceptualizes the **Eco-English Language Teaching (Eco-ELT) approach** as a multidimensional instructional system through which environmental content and critical language pedagogy interact to enhance higher-order learning outcomes.

Within this framework, Eco-ELT is operationalized through **six pedagogical dimensions**: material, experiential, cognitive, emotional, philosophical, and technological. These dimensions serve as the **instructional variables** implemented in the experimental group. To ensure methodological fidelity, each dimension was translated into observable classroom practices and learning tasks. The material and technological dimensions were reflected in the selection of eco-oriented instructional texts and the integration of digital platforms such as Canva, Padlet, and Quizizz. The experiential and cognitive dimensions informed the design of inquiry-based activities, problem-solving tasks, and reflective discussions. The emotional and philosophical dimensions were embedded through value-oriented prompts and reflective assignments addressing sustainability and ethical responsibility.

The framework further posits **eco-critical pedagogical engagement** as a **mediating construct** through which Eco-ELT influences learning outcomes. Methodologically, this construct was examined through **classroom observations and student questionnaires**, which captured students' levels of participation, critical reflection, emotional involvement, and dialogic interaction during Eco-ELT implementation. These qualitative and descriptive quantitative data enabled the study to move beyond surface-level instructional effects and examine the underlying engagement processes predicted by the framework.

Consistent with the conceptual model, the study employed a **quasi-experimental pre-test and post-test control group design** to examine outcome differences attributable to Eco-ELT. The **dependent variables**, namely **critical thinking skills** and **environmental literacy**, were operationalized through standardized pre- and post-tests aligned with higher-order cognitive processes and ecological knowledge relevant to agricultural contexts. Descriptive quantitative analysis was used to measure changes in students' performance levels, while thematic analysis of observational and questionnaire data was conducted to identify patterns corresponding to the six Eco-ELT dimensions.

The framework also explicitly acknowledges the **agricultural higher education context of Universitas Islam Makassar** as a contextual boundary condition. Accordingly, participants were drawn from the Agribusiness Study Program to ensure disciplinary relevance and ecological authenticity. While empirical findings are contextually situated, the methodological alignment between Eco-ELT dimensions, mediating engagement, and learning outcomes supports the framework's theoretical transferability to other higher education contexts.

In sum, this methodological alignment demonstrates that the conceptual framework does not merely function as a visual representation but actively structures the research design, instructional intervention, instrument development, and data analysis. This alignment strengthens the internal validity of the study and supports its contribution to theory-driven research in eco-oriented English language teaching.

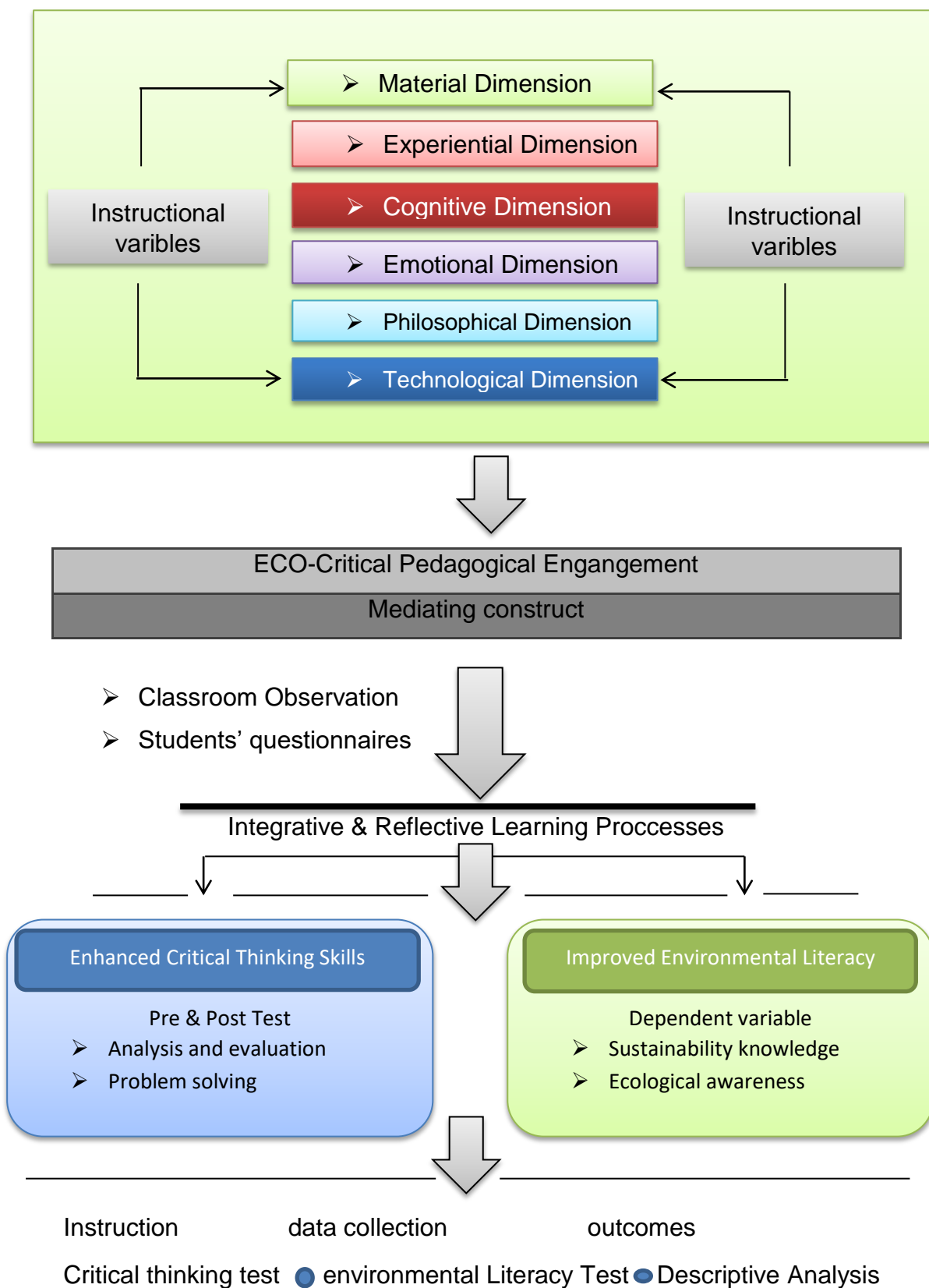


Diagram 1. Conceptual Framework

2.6. Hypotheses

A research hypothesis is a specific, clear, and testable proposition that predicts the expected relationship between variables based on theoretical assumptions and empirical evidence from previous studies. In this study, the hypotheses are grounded in eco-critical pedagogy, English language teaching theory, and prior research on environmental education and higher-order thinking skills. Guided by the conceptual framework of Eco-English Language Teaching (Eco-ELT), which positions ecological content integration and critical engagement as mechanisms for learning, the following hypotheses are proposed.

H₁: The implementation of the Eco-English Language Teaching (Eco-ELT) approach significantly enhances students' **critical thinking skills** in Agricultural Department at Universitas Islam Makassar.

H₂: The implementation of the Eco-English Language Teaching (Eco-ELT) approach significantly enhances students' **environmental literacy** in Agricultural Department at Universitas Islam Makassar.

H₃: The Eco-English Language Teaching (Eco-ELT) approach has a significant combined effect on enhancing students' **critical thinking skills and environmental literacy** in Agricultural Department at Universitas Islam Makassar..