ENHANCING ENVIRONMENTAL VOCABULARY THROUGH ECOLINGUISTIC TEXTS: AN EXPERIMENTAL STUDY WITH UPMI ENGLISH LEARNERS

Puji Hariati

Universitas Pembinaan Masyarakat Indonesia, Medan, Indonesia

ABSTRACT

This study examines the effectiveness of ecolinguistic texts in enhancing environmental vocabulary acquisition among English Education students at Universitas Pembinaan Masyarakat Indonesia (UPMI). Employing a quasi experimental pre-test post-test control group design, the study involved 60 second-year students divided equally into experimental and control groups. The experimental group received instruction through ecolinguistic texts integrating environmental themes, while the control group used conventional English materials. Data were analyzed using paired-sample and independent-sample t-tests. The findings reveal a statistically significant improvement in environmental vocabulary mastery in the experimental group compared to the control group. These results suggest that ecolinguistic texts provide meaningful contextualization, support semantic networking, and foster deeper lexical engagement. The study contributes to sustainability-oriented English language teaching and supports the integration of ecolinguistics into EFL curricula as part of Education for Sustainable Development (ESD).

CORRESPONDING AUTHOR:
Name: Puji Jariati
Address: Jl. Teladan No.15, Teladan Bar., Kota Medan, Sumatera Utara 20214
E-mail: zeenasution@gmail.com

INTRODUCTION

The global environmental crisis has intensified the need to integrate ecological awareness into education, including English language teaching. One essential component of ecological literacy is environmental vocabulary mastery, which enables learners to participate meaningfully in global sustainability discourse. In Indonesian EFL contexts, however, environmental vocabulary remains underrepresented in instructional materials, particularly at the tertiary level.

Ecolinguistics offers a theoretical and pedagogical framework for addressing this gap by examining how language shapes ecological understanding and values (Stibbe, 2021). By embedding environmental issues into language instruction, ecolinguistic pedagogy transforms vocabulary learning from mechanical memorization into context driven meaning construction (Fill & Penz, 2021).

Previous studies have demonstrated the effectiveness of ecolinguistic approaches in enhancing vocabulary acquisition (Ahn & Park, 2021; Chen, 2023). However, empirical evidence from Indonesian higher education, especially within teacher education programs

remains limited. This gap is critical, as prospective English teachers play a strategic role in advancing sustainability-oriented education.

Therefore, this study aims to examine the effectiveness of ecolinguistic texts in improving environmental vocabulary acquisition among English Education students at Universitas Pembinaan Masyarakat Indonesia (UPMI), contributing context specific empirical evidence to green ELT and sustainability oriented curriculum development.

Recent studies have shown that ecolinguistic based instruction can significantly improve students' environmental literacy. For instance, Ahn and Park (2021) found that using environmentally themed texts in EFL classrooms positively impacted Korean students' environmental vocabulary acquisition. Similarly, Ningsih and Suryati (2022) reported that integrating ecological content into English lessons enhanced Indonesian students' environmental empathy and thematic vocabulary knowledge.

Despite its potential, experimental research specifically investigating the impact of ecolinguistic texts on the environmental vocabulary of tertiary level students in Indonesia, particularly at UPMI, remains limited. Considering that university students, especially prospective English teachers, play a vital role in promoting sustainability through education, this research seeks to fill that gap.

Global environmental awareness demands specialized linguistic competence, particularly in ecological vocabulary (environmental literacy), as a critical skill for English learners (Stibbe, 2021). In Indonesia, limited mastery of environmental terminology among English Education students impedes their participation in international ecological discourse (Nurhayati & Suhardi, 2022). Recent studies confirm that ecolinguistic texts, materials integrating language environment relationships, effectively enrich environmental lexicons through authentic contexts (Fill & Penz, 2021). An experimental study by Chen (2023) demonstrated a 32% increase in vocabulary retention among Taiwanese university students after ecolinguistic interventions. However, implementation remains scarce in Indonesia contexts, particularly at institutions like Universitas Pembinaan Masyarakat Indonesia (UPMI), where English Education programs lack ecological text integration.

Li's (2020) analysis revealed that conventional texts inadequately address ecological dimensions, resulting in mechanistic vocabulary learning. UNESCO (2023) emphasizes embedding ecological literacy in language curricula as a prerequisite for sustainable development. At UPMI, preliminary observations indicate 72% of English Education students struggle with terms like carbon footprint, biodiversity loss, and sustainable consumption in academic tasks. This study addresses this gap by designing an ecolinguistic text intervention based on Fill's (2021) framework.

Therefore, this study aims to examine the effectiveness of ecolinguistic texts in enhancing the environmental vocabulary of UPMI English learners.

LITERATURE REVIEW

Ecolinguistics is an interdisciplinary field that explores the relationship between language and the environment. It investigates how linguistic structures, discourses, and narratives influence human perceptions and behaviors toward nature. According to Stibbe (2021), ecolinguistics examines the "stories we live by" that is, the recurring linguistic patterns that shape how societies conceptualize ecological realities. Language, in this sense, not only

reflects but also constructs environmental attitudes. When used critically and reflectively, language can function as a tool to foster ecological awareness and responsibility.

Fill and Penz (2021) also emphasize that ecolinguistics serves as a bridge between linguistic studies and environmental education. By embedding ecological themes within language learning, educators can promote both linguistic competence and ecological literacy. This theoretical framework provides the foundation for the present study conducted at Universitas Pembinaan Masyarakat Indonesia (UPMI), which integrates ecolinguistic texts into English vocabulary learning to enhance students' environmental lexicon.

Recent empirical studies demonstrate that the integration of ecolinguistic materials in English language learning significantly enhances students' vocabulary acquisition. Ahn and Park (2021) conducted a quasi experimental study in South Korea and found that students who learned English through environmental content exhibited greater vocabulary retention and engagement compared to those taught using traditional texts. The researchers concluded that contextually meaningful topics particularly those addressing global environmental concerns provide richer semantic networks, facilitating better comprehension and memory retention.

Similarly, Chen (2023) investigated ecolinguistic pedagogy in Taiwan and reported a 32% improvement in students' environmental vocabulary post intervention. The study demonstrated that exposure to authentic ecolinguistic texts, such as articles, short stories, and poems about environmental issues, promotes both language learning and ecological awareness. These findings are consistent with the UPMI study, where students in the experimental group who engaged with ecolinguistic texts achieved significantly higher post-test scores than those in the control group.

In the Indonesian context, Ningsih and Suryati (2022) emphasized that integrating environmental themes into EFL classrooms not only improves language skills but also cultivates "green literacy." Their research revealed that learners become more empathetic and conscious of environmental issues when language learning materials reflect real world ecological challenges. Moreover, Nurhayati and Suhardi (2022) identified several barriers to environmental literacy in Indonesian classrooms, including the lack of teaching resources and teacher training related to ecolinguistics. These studies highlight the need for curriculum innovations that embed environmental content into English language education.

Beyond classroom implications, ecolinguistics aligns with the broader educational agenda known as Education for Sustainable Development (ESD). According to UNESCO (2023), ESD seeks to empower learners with the knowledge, skills, and values necessary to contribute to a sustainable future. Incorporating ecolinguistic principles into the language curriculum supports this mission by equipping students with the linguistic and conceptual tools to discuss sustainability issues critically.

Although the recent literature consistently supports the positive impact of ecolinguistic materials on vocabulary learning, several research gaps remain. First, most studies, including those by Ahn and Park (2021) and Chen (2023), are short-term experiments; thus, there is limited understanding of the long-term retention of environmental vocabulary after instruction. Second, few studies have explored the transfer effect of ecolinguistic learning to other language skills such as speaking or writing. Third, there is a need to investigate how different genres of ecolinguistic texts (e.g., narratives, news articles, infographics) influence vocabulary acquisition differently. Lastly, the teacher's role and pedagogical competence in integrating ecolinguistics into the classroom deserve further exploration, as highlighted by Nurhayati and Suhardi (2022).

The reviewed studies collectively indicate that ecolinguistic pedagogy serves as a powerful approach for vocabulary enhancement while simultaneously fostering environmental awareness. When learners engage with language materials rooted in ecological contexts, they are more likely to internalize both linguistic forms and environmental values. This dual benefit linguistic and ecological aligns perfectly with the goals of sustainable education. As demonstrated by recent research (Ahn & Park, 2021; Chen, 2023; Ningsih & Suryati, 2022; Nurhayati & Suhardi, 2022), ecolinguistic texts not only expand students' vocabulary repertoire but also nurture empathy toward nature, making language learning more meaningful and transformative.

METHOD
Research Design
This study adopted a quasi experimental research design, which involved a pre-test and post test with a control group and an experimental group. This method was chosen to measure the impact of ecolinguistic texts on students' acquisition of environmental designs are effective for examining causality when random assignment is not possible, especially in educational contexts.

The experimental group received instruction using ecolinguistic texts, authentic reading materials that embedded environmental issues and ecological concepts, while the control group received conventional English texts without ecological content.

The Environmental Vocabulary Test (EVT) underwent content validation by two experts in applied linguistics and ecolinguistics to ensure relevance and representativeness of test items. A pilot test was conducted with 25 students outside the research sample. Reliability analysis using Cronbach's alpha yielded a coefficient of 0.87, indicating high internal consistency.

Participants
The participants of the study were English Education students at Universitas Pembinaan Masyarakat Indonesia (UPMI) in the 2024/2025 academic year. A total of 60 students were selected using purposive sampling, based on their enrollment in the second year vocabulary development course. The students were then divided equally into an experimental group (30 students) and a control group (30 students).

According to preliminary observations by Nurhayati & Suhardi (2022), approximately 72% of students in this deparment struggle with understanding key ecological terms such as biodiversity loss, sustainable consumption, and carbon footprint. This provided a compelling rationale for their selection as the study population.

Purposive sampling was employed to select second year English Education students, as they had completed foundational vocabulary courses and were cognitively prepared for thematic and critical language instruction. This cohort is particularly relevant given their future role as English teachers who may integrate sustainability themes into classroom practice.

Instruments
To assess students' environmental vocabulary knowledge, this study utilized:

1. Environmental Vocabulary Test (EVT): A research developed test consisting of 40 items (multiple choice and matching), derived from ecological word lists adapted from UNESCO (2023) and Stibbe (2021).
2. Teaching Materials: The ecolinguistic texts were curated based on Fill's (2021) ecolinguistic framework, which emphasizes discourse patterns that promote ecological balance. Materials included news articles, narratives, and infographics on environmental themes such as climate change, pollution, and conservation.
3. Lesson Plans: Both groups were taught for four weeks (eight sessions) using standardized lesson plans to ensure consistent teaching duration and assessment.

Data Collection Procedure

The research was conducted over a five week period as follows:
- Week 1: Administration of the pre-test to both groups.
- Weeks 2 – 4: Implementation of treatment. The experimental group was exposed to ecolinguistic texts, while the control group was taught using standard English reading texts.
- Week 5: Administration of the post test to measure vocabulary improvement.

To ensure validity, test items were piloted with a separate cohort of students and reviewed by two experts in applied linguistics.

In addition to statistical significance testing, effect sizes were calculated to determine the magnitude of the intervention's impact.

Data Analysis

The data were analyzed using quantitative statistical methods. The pre-test and post test scores were compared using paired sample t-tests and independent sample t-tests to determine:
1. Whether there was a significant improvement in each group's vocabulary scores before and after the treatment.
2. Whether the improvement in the experimental group was significantly greater than in the control group.

The level of significance was set at $p < 0.05$. SPSS version 26 was significantly greater than in the control group.

FINDING AND DISCUSSION
FINDING

This study aimed to examine the effectiveness of ecolinguistic texts in improving environmental vocabulary among students of the English Education Department at Universitas Pembinaan Masyarakat Indonesia (UPMI). The collected data, students' data, students' scores from pre-tests and post tests were analyzed using both descriptive and inferential statistics, specifically paired sample t-tests and independent sample t-tests using SPSS 26.

The substantial gain observed in the experimental group suggests that ecolinguistic texts facilitate deeper lexical processing by situating vocabulary within meaningful environmental contexts, thereby enhancing semantic association and retention.

Descriptive statistic

The mean pre-test scores of the experimental and control groups were relatively similar, indicating a homogeneous baseline. The experimental group had a mean score of 58.43 (SD = 9.11), while the control group had a mean of 57.87 (SD = 8.96). After the intervention, the experimental group's mean score rose to 79.10 (SD = 7.85), while the control group's mean only increased to 65.30 (SD = 8.22). This result suggests that both groups improved, but the experimental group showed a much higher gain in vocabulary mastery.

Inferential Statistics

The paired sample t-test showed a significant difference between the pre-test and post test scores in the experimental group ($t = 14.05$, $p < 0.001$), indicating that ecolinguistic texts significantly enhanced students' environmental vocabulary. In contrast, the control group also improved, but the gain was modest and less statistically robust ($t = 5.42$, $p < 0.01$).

Moreover an independent-sample t-test on post test scores revealed a statistically significant difference between the experimental and control groups ($t = 7.61$, $p < 0.001$), confirming the superior effectiveness of the ecolinguistic text intervention.

These findings are consistent with those of Chen (2023), who reported a 32% increase in vocabulary retention among Taiwanese EFL students using ecolinguistic texts. Similarly, contributed to vocabulary acquisition in Korean classrooms.

Discussion

The results of study provide strong empirical support for the use of ecolinguistic texts in English language instruction, particularly in vocabulary development. Ecolinguistic materials expose students to authentic and meaningful content rooted in ecological contexts. The superior performance of the experimental group can be attributed to several pedagogical mechanisms.

First, ecolinguistic texts provide contextualized input that strengthens semantic networks, allowing learners to associate new vocabulary with real-world ecological phenomena. Second, environmental themes evoke emotional and ethical engagement, which enhances cognitive depth and memory retention. Third, exposure to authentic discourse promotes critical reflection, aligning vocabulary learning with meaning-making rather than rote memorization.

Stibbe (2021) argues that ecolinguistics encourages learners to understand language not only as a communication tool but also as a medium that shapes ecological consciousness. The findings of this study affirm this theoretical claim, as students demonstrated higher vocabulary gains when exposed to texts that were contextually and ecologically and ecologically meaningful.

Furthermore, UNESCO (2023) highlights the importance of embedding ecological literacy into language curricula as part of education for sustainable development (ESD). This study confirms that integrating ecolinguistic approaches is not only pedagogically sound but also contributes to broader educational and environmental goals.

In the Indonesian context, Ningsih and Suryati (2022) emphasized the necessity of incorporating environmental issues in language education to enhance both vocabulary

knowledge and ecological awareness. The present study corroborates their findings by demonstrating the measurable benefitsof such integration in higher education settings.

This study contributes original empirical evidence from Indonesian higher education, specifically within an English teacher education context, strengthening the case for institutional-level curriculum integration of ecolinguistics.

CONCLUSIONS

This study demonstrates that ecolinguistic texts significantly enhance environmental vocabulary acquisition among Indonesian EFL learners in higher education. Beyond vocabulary gains, the findings highlight the pedagogical value of integrating ecological meaning, ethical engagement, and contextualized discourse into language instruction. As a context-specific study within teacher education, this research provides empirical support for sustainability-oriented ELT and curriculum reform aligned with Education for Sustainable Development (ESD).he study set out to examine the effectiveness of ecolinguistic texts in enhancing environmental vocabulary acquisition among students of the English Education Department at Universitas Pembinaan Masyarakat Indonesia (UPMI). Employing a quasi experimental design, the research compared the performance of students who were taught using ecolinguistic texts with those taught using conventional English texts.

This study contributes original empirical evidence from Indonesian higher education, specifically within an English teacher education context, strengthening the case for institutional-level curriculum integration of ecolinguistics.

Suggestions

Based on the findings and implications of this study, the following suggestions are proposed:

1. Curriculum Integration: English language programs, especially in teacher education, should incorporate ecolinguistic materials into reading and vocabulary courses.
2. Teacher Training: English teachers training should be equipped with knowledge and skills in ecolinguistic pedagogy to promote environmental literacy through language instruction.
3. Further Research: Future studies may explore long term retention of environmental vocabulary, examine students' attitudinal changes toward ecological issues, or expand the research to other skills such as speaking and writing.
4. Policy Support: Institutional and governmental educational policies should support the development and dissemination of ecolinguistic materials aligned with national sustainability goals.

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