



Ecolinguistics in Bangladeshi Secondary-Level English Textbooks: A Corpus Analysis

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Abstract

Ecolinguistics has developed over the past five decades in response to ecological crises and the growing demand for an ecological perspective within linguistics (Zhou, 2021). This study examines the integration of environmental content in '*English for Today Classes Nine-Ten*', a secondary-level textbook used in Bangladesh, a country facing a range of environmental challenges. Employing both qualitative and quantitative methods, including the use of AntConc and semantic prosody analysis, the study assessed the frequency, context, and presentation of ecological themes such as sustainability, conservation, and environmental awareness. The findings revealed that ecological terms are included in the textbook inconsistently and with limited diversity, which may hinder students' development of environmental awareness. The research aimed to influence curriculum development and educational policies, underlining the need to incorporate varied and recent environmental issues into educational materials. Therefore, this study emphasizes the need for a more comprehensive inclusion of ecological elements to promote ecolinguistic awareness among students. It contributes to ecolinguistics by recommending improvements in environmental representation in English curricula. Additionally, it offers valuable insights for educators and policymakers to enhance students' environmental literacy and promote sustainable development.

Keywords: corpus analysis, ecolinguistics, English language textbook, environmental education, sustainability in language curriculum

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La Ecolingüística En Los Libros De Texto De Inglés Del Nivel Secundario En Bangladesh: Un Análisis Basado En Corpus

Resumen

La ecolingüística se ha desarrollado durante las últimas cinco décadas en respuesta a las crisis ecológicas y a la creciente demanda de una perspectiva ecológica en la lingüística (Zhou, 2021). Este estudio examina la integración de contenidos medioambientales en *“English For Today Classes Nine-Ten”*, un libro de texto de nivel secundario utilizado en Bangladesh, un país que enfrenta diversos desafíos ambientales. El estudio empleó métodos cualitativos y cuantitativos, utilizando AntConc y el análisis de prosodia semántica, para evaluar la frecuencia, el contexto y la presentación de temas ecológicos como la sostenibilidad, la conservación y la concienciación ambiental. Los hallazgos demostraron que el libro de texto incluye términos ecológicos de manera inconsistente y con poca diversidad, lo que podría limitar la concienciación ambiental de los estudiantes. Estos resultados buscan tener un impacto en el desarrollo curricular y en las políticas educativas, subrayando la necesidad de incorporar una mayor variedad de temas ambientales actuales en los materiales educativos. Este estudio resalta la necesidad de una inclusión más amplia de elementos ecológicos para fomentar la conciencia ecolingüística entre los estudiantes. También contribuye a la ecolingüística al recomendar mejoras en la representación medioambiental en los programas de inglés. Finalmente, ofrece perspectivas para educadores y responsables políticos con el fin de mejorar la alfabetización ambiental de los estudiantes y promover el desarrollo sostenible.

Palabras clave: análisis de corpus, ecolingüística, educación ambiental, libros de texto de inglés, sostenibilidad en el currículo de idiomas

Introduction

The interconnection between language and environmental consciousness constitutes the foundation of this study, which explores the significance of ecolinguistics in English language textbooks. Ecolinguistics examines the relationship between language and the environment, focusing on how linguistic practices influence life-sustaining interactions between humans, other species, and the physical environment (International Ecolinguistics Association, as cited in Stanlaw, 2020, [Penz & Fill, 2022](#); [Fill & Mühlhäusler, 2001](#)). Moreover, it addresses the role of language in environmental degradation and emphasizes the importance of linguistic diversity, drawing a parallel with biodiversity, as essential for planetary well-being ([Mühlhäusler, 2006](#); [Stanlaw, 2020](#)). By providing a critical lens, ecolinguistics investigates how linguistic practices can influence and reflect human attitudes and behaviors towards the environment.

English, as a global lingua franca and dominant medium in education, holds a unique position in shaping environmental awareness. English textbooks in educational settings act as language instruction tools and carriers of cultural and environmental messages. Therefore, assessing how these textbooks incorporate environmental topics is not only relevant but also crucial to understanding their role in cultivating environmental awareness among learners ([Mihanpour et al., 2018](#)).

This investigation is paramount in facing unparalleled environmental difficulties, including climate change, declining biodiversity, and ecosystem degradation. The imperative to nurture a sense of environmental stewardship and promote sustainable behavior has never been more urgent, and education occupies a critical position in this endeavor. By seamlessly integrating ecological consciousness into all educational disciplines, including language studies, we aspire to equip future generations with the knowledge, attitudes, and competencies necessary to address the environmental challenges facing our planet. Therefore, this research transcends mere academic inquiry; it serves as a clear call to action for educators, curriculum designers, and policymakers. It underscores the significance of embedding environmental education across the entire spectrum of learning, highlighting the exceptional role that language education can play in this global endeavor.

Literature review

Environmental education (EE), environmental awareness (EA), and education for sustainability (EfS) are interconnected concepts that are crucial to fostering a sustainable future. The integration of these educational frameworks into school curricula is essential for developing a generation that not only understands environmental issues but is also equipped with the skills and knowledge to address them effectively.

EE serves as the foundation for promoting environmental awareness among students, encompassing a wide range of activities designed to enhance their understanding of ecological principles and the impact of human activities on the environment. As highlighted by [Adriyanto et al. \(2020\)](#), the implementation of Education for Sustainable Development (ESD) in schools empowers students to engage in sustainable practices and contributes to environmental and social change. This empowerment fosters a sense of responsibility and agency, enabling learners to make informed decisions about environmental issues.

The role of teachers in facilitating EE and EfS cannot be overlooked. Research has underscored that teachers' expertise in ESD is vital for successfully integrating sustainability concepts into the curriculum ([Abidin et al., 2023](#)). As educators deepen their understanding of sustainability, they can cultivate learning environments that promote critical thinking and problem-solving regarding environmental challenges. [Schelly et al. \(2012\)](#) emphasized the importance of teachers modeling sustainable behaviors within educational settings to foster a conservation culture among students.

Curriculum development for ESD should incorporate principles from sustainability science, ecological science, and systems theory, as suggested by [Landrum \(2021\)](#). This interdisciplinary approach enriches the educational experience and prepares students to confront complex environmental issues. [Santos et al. \(2022\)](#) further argue that

education plays a central role in enabling students to critically engage with global challenges such as climate change and biodiversity loss. Embedding these topics into curricula fosters a holistic understanding of sustainability that transcends the boundaries of traditional subjects.

Beyond curriculum design, the physical environment of schools is integral to the promotion of EE and EA. Schools that adopt sustainable practices, such as eco-friendly infrastructure and community-based environmental projects, serve as living laboratories for students ([Mohamed et al., 2023](#)). This experiential learning approach allowed students to connect theoretical knowledge with real-world applications, thereby deepening their understanding of sustainability. The Sustainable Campus Project exemplifies this by promoting energy conservation and carbon reduction initiatives in educational institutions ([Wang et al. 2012](#)).

Despite these efforts, the successful implementation of EE and EfS has faced significant challenges. A primary obstacle is the lack of resources and support for teachers to deliver sustainable education effectively. [Uitto and Saloranta \(2017\)](#) found that many teachers felt unprepared to teach sustainability concepts due to insufficient training and professional development opportunities. This underscores the need for comprehensive teacher education programs that equip educators with the skills and knowledge necessary to integrate sustainability into their teaching practices.

Furthermore, the participation of school leadership is crucial to fostering a sustainable culture within educational institutions. Effective school leaders can inspire and motivate teachers to prioritize sustainability in their curricula and practices. [Müller et al. \(2020\)](#) assert that principals play a pivotal role in implementing ESD by creating supportive environments that encourage collaboration and innovation among staff. This leadership approach is essential to ensure long-term changes in educational practices related to sustainability.

Ecology, originally rooted in form-based traditions in the 1970s, has developed into a unified and naturalized science of language that addresses issues such as resource exploitation, social empowerment, and peaceful coexistence in multicultural communities ([Steffensen & Fill, 2014](#)). As an interdisciplinary field, ecology integrates the natural sciences and humanities, focusing on interrelations, networking, dialectics, and diversity ([Fill, 1998](#)). Moreover, it involves an ecological analysis of discourse that encompasses both explicit texts about the environment and metaphorical thoughts about language contact ([Alexander & Stibbe, 2014](#)). It can be seen as an alternative to linguistics and as a branch of ecology with a distributed language perspective that provides a new understanding of research objects and methodologies ([Li et al., 2020](#)). Furthermore, ecology focuses on the relationship between a language and its environment, emphasizing the coexistence of language speakers and their environment, whereas linguoecology focuses on language and its disappearing forms ([Ivanov 2020](#)) including the combination of traditional critical discourse studies with an ecologically based normative framework to analyze human relationships with nature, promoting respect and care for the natural world ([Stibbe, 2014](#)). Consequently, ecology effectively enhances college English classroom teaching by integrating ecology and linguistics, improving real-time work, and improving teaching quality ([Luo, 2021](#)). It is an emerging field with diverse meanings, and its insights and methods are underappreciated and underutilized in studying human-nature interactions ([LeVasseur, 2015](#)).

Examining the fundamental relationship between linguistics and ecology highlights the pressing need to incorporate 'conscientious and integrative awareness of ecological education' ([Urlica et al., 2018](#), p. 543). This integration is essential to promote student awareness and understanding of pressing global environmental challenges ([Zahoor & Janjua, 2020](#)). [Hamed \(2021\)](#) advocates for an education that transcends conventional language and general knowledge acquisition, enabling students to develop the ability to relate classroom-taught knowledge to their everyday environmental interactions. Numerous studies have emphasized the benefits of incorporating ecological elements into lessons in the context of English as a Foreign Language (EFL), thus facilitating the concurrent learning of English and ecological knowledge ([Asgher et al., 2021](#); [Damico et al., 2020](#); [Faramarzi & Janfeshan, 2021](#); [Majeed et al., 2022](#); [Miless & Larouz, 2018](#)). Faramarzi and Janfeshan (2021) further recommend embedding issues related to environmental crises in ELT textbooks to raise student awareness. They argue that such content can deepen students' understanding of their environments, ecological systems, and environmental risks, including resource depletion, waste, global warming, and species extinction ([Faramarzi & Janfeshan, 2021](#); [Majeed et al., 2022](#)).

Previous research in this field has included investigations by [Faramarzi and Janfeshan \(2021\)](#), who analyzed the representation of ecolinguistic elements in Iranian English textbooks and identified a deficiency in adequate representation. Similarly, [Mliless and Larouz \(2018\)](#) conducted a study on Moroccan English textbooks, examining their ecolinguistic content. They highlighted significant pedagogical implications of incorporating local themes, clear representations of agency, and effective pedagogies to enhance students' understanding of environmental issues, fostering critical thinking and responsible behavior. [Majeed et al. \(2022\)](#) performed an analysis of Pakistani English textbooks from an ecolinguistic perspective and concluded that these materials extensively incorporated ecolinguistics content. They recommended that educational institutions equip students with the necessary skills and knowledge. [Hamed \(2021\)](#) explored the environmental discourse in Egyptian English textbooks, uncovering the prevalence of superficial conservationism, environmentalism, and anthropocentric narratives reflective of a consumerist society. Finally, [Ekasiwi and Bram \(2023\)](#) found that Indonesian English textbooks exhibited low levels of ecolinguistics representation, and some textbooks entirely lacking such aspects.

The present study underscores the noticeable lack of scholarly inquiry into ecolinguistic aspects within the context of English language teaching and learning in Bangladesh. This research gap—specifically concerning the integration of ecolinguistic components in English as a Foreign Language (EFL) textbooks and curricula—is especially important given the country's distinct environmental challenges and cultural context. The scarcity of research in Bangladesh limits our understanding of how ecolinguistic principles can be effectively incorporated into educational materials and perceived within pedagogical frameworks. Bangladesh is currently grappling with significant environmental issues such as river pollution, deforestation, and the impacts of climate change, making it a compelling context for exploring how ecolinguistic content can promote environmental awareness and responsible behavior among students. Research can also examine whether current English language education in Bangladesh sufficiently addresses local ecological concerns and prepares learners to engage in global environmental discourse. Moreover, the country's linguistic diversity—comprising numerous dialects and languages—offers an opportunity to examine how ecological issues are understood and communicated across language communities. This has important implications for developing ecolinguistically informed educational resources that are both linguistically and culturally responsive. Addressing this gap offers promising prospects for future research to make a significant contribution to the fields of ecolinguistics and environmental education.

Research Question

The primary objective of this study is to investigate the ecological elements present in the '*English For Today Classes Nine-Ten*' in Bangladesh. This objective is guided by the following research question.

To what extent are ecological values integrated into a secondary-level English textbook in Bangladesh, and what are the nature of those elements?

Research Methodology

This study analyzed a corpus of a secondary-level English textbook to examine the integration of ecolinguistic principles. The methodology involved selecting and digitizing the textbook, which was then compiled into a unified corpus. AntConc, a multifunctional software developed by [Anthony \(2022\)](#), was used to identify and contextualize ecological terms through frequency lists, bi-gram, tri-gram, and concordance (e.g. ecosystem, environment, sustainability, renewable energy, deforestation, recycling, eco-friendly, etc.) The frequency of these keywords was first analyzed to determine their prevalence within the corpus. Bi-gram and tri-gram analysis was applied to uncover the common word associations and patterns surrounding key ecological terms. These analyses provided a comprehensive understanding of the linguistic landscape regarding environmental education. Finally, concordance analysis was conducted to investigate the contexts in which these terms emerged, followed by a semantic prosody analysis to identify underlying patterns and pedagogical applications, providing insights into the framing of environmental issues.

Data Description

Data for this study were derived from a specialized pedagogic corpus based on an English language textbook prescribed for Classes 9 and 10 by the National Curriculum and Textbook Board (NCTB), under the Ministry of Education (MoE) of Bangladesh. Class 9 prepares students for the Secondary School Certificate (SSC) examinations taken in Class 10, with the same textbook used across both years. The textbook was employed as a compulsory component of English language instruction in both public and private schools from 2012 to 2022. This textbook was chosen for its important role in the Bangladeshi secondary education system. It is purposefully created for this educational level and aligns with the national curriculum, incorporating a diverse range of topics, including ecological matters and sustainability, which are gaining prominence in the educational landscape. Furthermore, as a government-published textbook, it reflects the educational standards and goals set by national policymakers, offering insights into approved methods of English language instruction and the integration of environmental education. Its selection is especially relevant since secondary education is a key stage in preparing students for higher education and future careers.

Table 1. *Textbook Overview*

| N | Writers | Name of the book | Publisher | Year of publication |
|---|----------------------------------|------------------------------------|---|--------------------------|
| 1 | Shams <i>et al.</i> (2012, 2020) | English For Today Classes Nine-Ten | National Curriculum and Textbook Board (NCTB) | 2012, 2020 (3rd edition) |

[Table 1](#) provides an overview of the “*English for Today: Classes Nine-Ten*” textbook, authored by Shams *et al.* (2012, 2020) and published by the National Curriculum and Textbook Board (NCTB). Originally released in October 2012, the textbook has undergone three revisions: in 2014, 2017, and 2020, it consists of 14 units and 203 pages which comprise the corpus for this study. The textbook was distributed free of charge by the Government of the People’s Republic of Bangladesh.

Data Processing and Analysis

The data collection process in this study consisted of a series of methodological steps. First, the English textbook for Classes 9 and 10—the primary focus of this investigation—was obtained from the official NCTB website (<https://drive.google.com/file/d/1tsq23Q7BNljxPMcW9LtZvaaw4rgoMAyA/view>), where it is available as a downloadable PDF. Second, the PDF version of the textbook was converted into a plain text (TXT) format; this conversion was essential to ensure compatibility with the corpus analysis tool and enable more efficient processing of text data. Finally, the converted text file was prepared for analysis, which involved any necessary cleaning or formatting to ensure the accuracy of subsequent analytical processes.

Result and discussion

The current textbook, “*English for Today Classes Nine-Ten*”, extensively explores the English language with a comprehensive analysis of 203 pages, organized into 14 distinct units. [Table 1](#) provides a detailed overview of the textbook content. The following ecolinguistic-related units were identified, in unit five ‘Nature and Environment’, and unit eleven ‘Renewable Energy’ from pages 58-72 and 141-150, respectively. Some parts of it aim to promote environmental awareness among students by facilitating their comprehension of fundamental environmental concepts and engaging them in dialogue regarding ecological issues. It also fosters critical engagement through debates, lectures, and environmental activism in newspapers.

In addition, the textbook seeks to empower students to actively engage in public activism by creating slogans and posters, ultimately equipping them with tools to raise awareness and advocate for ecological sustainability. Collectively, the two units—“Nature and Environment: and “Renewable Energy”—constitute 14.29% of the total content of the textbook. These units are essential for enhancing students’ understanding of key environmental issues, as they examine the role of the ecosystem, the harmful effects of fossil fuels, and the benefits of renewable energy, while also addressing critical concerns such as climate change, global warming, and soil pollution, reinforcing their relevance in environmental discourse.

Table 2. *Ecolinguistic units in “English for Today’s Classes Nine-Ten”*

| Textbook | Total page | Unit total | Topic related to Ecolinguistics | Name of the units | Percentage of units related to Ecolinguistics |
|------------------------------------|------------|------------|---------------------------------|--|---|
| English for Today Classes Nine-Ten | 2203 | 14 | 2 | 1. Nature and Environment 2. Renewable energy | 14.29% |

Ecological Words Frequency

The purpose of the corpus analysis conducted on “*English for Today Classes Nine-Ten*” was to determine the prevalence of ecological terms in the textbook. [Table 3](#) presents the findings of this analysis, showing the distribution of ecological words in relation to the overall word count of the textbook. Although ecolinguistic content comprises a small proportion of the overall text, it holds significant potential for enhancing students’ environmental awareness. The incorporation of ecological terms into the textbook plays a vital role in sensitizing students to environmental issues and the importance of ecosystem conservation. This also signifies a deliberate effort in the curriculum to integrate environmental topics, albeit to a limited extent, into the language education framework.

Table 3. *Total words related to ecolinguistics in the textbook*

| Textbook | Total words in the textbook | Total words related to Ecolinguistics | Percentage of words related to Ecolinguistics |
|----------------------------------|-----------------------------|---------------------------------------|---|
| English For Today Class Nine-Ten | 48544 | 770 | 1.59% |

The analysis of ‘*English for Today Classes Nine-Ten*’ reveals a modest but significant integration of ecolinguistic content, accounting for 1.59% of the total wordage of the textbook. This result is indicative of the emerging awareness and inclusion of environmental themes in language education, serving as a foundational step toward fostering ecological consciousness among students. The presence of ecological terms, although limited, is a crucial element in educating students about the importance of preserving and understanding our ecosystem, thus contributing to the larger goal of environmental education.

Table 4. *Top ecological-related words in the book*

| Rank | Words | Frequency | Percentage relative to Ecolinguistics |
|------|-------------|-----------|---------------------------------------|
| 1 | energy | 89 | 11.56 |
| 2 | land | 49 | 6.36 |
| 3 | water | 40 | 5.19 |
| 4 | environment | 31 | 4.03 |
| 5 | global | 31 | 4.03 |
| 6 | pollution | 30 | 3.90 |
| 7 | renewable | 30 | 3.90 |
| 8 | nature | 28 | 3.64 |
| 9 | green | 24 | 3.12 |
| 10 | climate | 18 | 2.34 |

The analysis of ecological terms in the book highlights a pronounced focus on resource-related vocabulary, with a total frequency (f) of $f = 770$, representing all identified ecological terms. The term “energy” has the highest frequency, $f = 89$, accounting for 11.56% of the total ecological vocabulary. This focus on energy-related discussions suggests that the book emphasizes energy consumption and sustainability. However, the imbalance in frequency, with “energy” significantly higher than “land” ($f = 49$, % = 6.36) and “water” ($f = 40$, % = 5.19), implies that the text may under-represent other critical aspects of resource management, such as land use and water sustainability.

In the context of global and environmental concerns, terms such as “environment” and “global” each appear with a frequency of $f = 31$, representing % = 4.03 of the total, while “climate” appears with a lower frequency ($f = 18$, % = 2.34). Together, these terms have a total frequency of $f = 80$, which accounts for $\Sigma = 10.40\%$. The equal frequency of “environment” and “global” suggests a balanced focus on local and global concerns. However, the relatively low occurrence of “climate” indicates that climate change, a key global issue, may not be sufficiently addressed within the book, revealing a potential gap in its engagement with this critical ecological concern.

Furthermore, terms related to environmental degradation and preservation, including “pollution” ($f = 30$, % = 3.90), “green” ($f = 24$, % = 3.12), and “nature” ($f = 28$, % = 3.64), collectively sum up to $f = 82$, making up $\Sigma = 10.66\%$ of total terms. This distribution suggests moderate attention but implies that topics like pollution control and green initiatives are not central to the book’s ecological narrative. In particular, the relatively modest frequency of “pollution,” indicates a potential underemphasis on environmental degradation, an issue of growing importance in global ecological debates.

The investigation revealed the absence of key ecological terms, including “biodegradable”, “endangered”, “zero waste”, “reforestation”, “microplastics”, and “ozone”. This suggests that the textbook lacks diversity in ecological terminology and reflects limited awareness of current environmental crises and species endangerment.

This examination elucidates that the text prioritizes resource management, particularly related to energy, while marginally addressing the phenomena of climate change and environmental degradation. An integrative framework, centered on global sustainability, would provide a more expansive and empirically substantiated investigation of environmental challenges.

Cluster Analysis

Bi-gram analysis

This segment of corpus analysis aimed to identify contiguous word patterns, or clusters, based on key ecological keywords in the textbook. Cluster analysis is a valuable tool for uncovering common phrases and contextual usage of targeted terms, thereby offering insights into how ecolinguistics concepts are framed and emphasized.

[Table 5](#) provides a list of the top ten bi-gram clusters related to ecolinguistics, accompanied by their respective frequencies and normalized frequencies. This analysis sheds light on the prominence of particular ecological keywords in educational materials. The most recurrent bi-gram observed is “renewable energy”, which appears 24 times with a normalized frequency of 0.032 which is not significant but still holds some relevance within the corpus. Other notable clusters comprise “energy sources”, “global warming”, “carbon dioxide”, “climate change”, “green energy”, “fossil fuels”, “soil pollution”, “solar energy,” and “solar power.” These keywords are represented as both local and global phenomena, accompanied by various visual representations of these events.

The frequent occurrence of the “renewable energy” cluster underlines its significance in the textbook, reflecting global concerns about the need to transition from fossil fuels to sustainable energy sources. Likewise, the presence of clusters such as “global warming”, “climate change” and “fossil fuels” indicates a focus on critical environmental concerns, facilitating an understanding of their effects and relevance. The inclusion of these terms suggests a deliberate effort to educate students about key environmental challenges and potential solutions, reflecting a curriculum responsive to contemporary global environmental issues.

Table 5. *Top ten clusters of two words related to ecolinguistics in the textbook*

| Rank | Cluster | Frequency | Normal Frequency |
|------|------------------|-----------|------------------|
| 1 | renewable energy | 24 | 0.032 |
| 2 | energy sources | 17 | 0.023 |
| 3 | global warming | 16 | 0.021 |
| 4 | carbon dioxide | 11 | 0.015 |
| 5 | climate change | 9 | 0.012 |
| 6 | green energy | 9 | 0.012 |
| 7 | fossil fuels | 8 | 0.011 |
| 8 | soil pollution | 7 | 0.009 |
| 9 | solar energy | 7 | 0.009 |
| 10 | solar power | 6 | 0.008 |

Cluster analysis has revealed a notable presence of ecological words such as “renewable energy” and “climate change.” These findings highlight the textbook’s capacity to integrate environmental education into language learning, which aligns with the broader educational objectives of cultivating environmental consciousness among students. They further suggest a curriculum that not only imparts language proficiency but also fosters awareness of crucial ecological issues, thereby contributing to the education of environmentally informed and responsible citizens.

Tri-gram analysis

The present investigation focuses on conducting a tri-gram analysis with a particular emphasis on three-word clusters in the textbook “*English for Today Classes Nine-Ten*”. This analysis was designed to provide valuable insights into the common expressions found within the text corpus. Understanding the contextual usage of ecological terms and their prevalence within a text is essential to the success of this analysis. [Table 6](#) presents the top ten three-word clusters related to ecolinguistics identified in the textbook. These clusters were ranked on the basis of their frequency of occurrence along with their normalized frequencies, which provided a quantitative perspective on their prominence.

Table 6. *Top ten clusters of three words related to Ecolinguistics in the textbook*

| Rank | Cluster | Frequency | Normal Frequency |
|------|--------------------------|-----------|------------------|
| 1 | renewable energy sources | 10 | 0.020 |
| 2 | nature and environment | 9 | 0.018 |
| 3 | energy can be | 4 | 0.008 |
| 4 | energy in the | 3 | 0.006 |
| 5 | carbon dioxide gas | 2 | 0.004 |
| 6 | carbon dioxide in | 2 | 0.004 |
| 7 | fossil fuels are | 2 | 0.004 |
| 8 | global warming is | 2 | 0.004 |
| 9 | green energy in | 2 | 0.004 |
| 10 | pollution is the | 2 | 0.004 |

The most frequently used cluster is “renewable energy sources”, which appears ten times with a normalized frequency of 0.020 per thousand words. This high frequency suggests that this tri-gram is significant in the corpus.

This is followed by clusters such as “nature and environment”, “energy can be”, “energy in the”, “carbon dioxide gas”, and others, each highlighting different aspects of ecolinguistics. The prevalence of the “renewable energy sources” cluster indicates a strong emphasis on sustainable energy concepts within the educational material. The cluster “nature and environment” resonates with the thematic focus of the textbook on ecological awareness and conservation. The variety of groups, including those related to carbon dioxide and fossil fuels, reflects a comprehensive approach to environmental education that includes a variety of ecolinguistics-related words. The occurrence of these clusters suggests an educational strategy that not only imparts knowledge about the environment but also integrates this knowledge into the language learning process.

Concordance Analysis

The concordance analysis of this study was conducted to explore the contextual usage of ecological terms within the textbook “*English for Today: Classes Nine-Ten*”. In concordance analysis, specific search terms are examined within their immediate textual surroundings, revealing patterns of usage and the discourse in which they occur. The concordance lines generated for this study allow for a closer examination of the use of ecological terms in the textbook, facilitating both qualitative and quantitative insights into how these terms are presented to the students.

[Table 7](#) below highlights ten sentences from the textbook that feature ecological terms, illustrating how these terms are embedded within the narrative and highlighting their importance in environmental education. By focusing on the left and right contexts surrounding ecological terms, the concordance analysis reveals patterns of usage that underscore the textbook’s effort to integrate language learning with ecological awareness.

Table 7. *Ten sentences with the top environment-related words*

| Rank | Left context | Hit | Right context |
|------|--|--------------------|--|
| 1 | Leading industrial countries have taken initiatives to use alternative | energy | sources mainly known as green or renewable energy sources. |
| 2 | Polluting the | land | means polluting the water. |
| 3 | They are taking arsenic directly from their drinking | water | and indirectly from the crops and vegetables they eat. |
| 4 | Thirdly, fossil fuels have direct polluting impacts on Earth's | environment | causing global warming. |
| 5 | The effects of | global | warming are very alarming for our life and existence. |
| 6 | For a healthy life we should come forward to stop environmental | pollution | and the emission of greenhouse gases. |
| 7 | Hydro-carbon or fossil fuels are non- | renewable | sources of energy. |
| 8 | The many positive impacts to children of having contact with | nature | and learning outside the classroom. |
| 9 | Green energy sources make a | green | globe |
| 10 | People become rootless sometimes due to | climate | change, river erosion, social discrepancies, or poverty. |

Qualitative Analysis: Discourse-Analytical Approach

In this section, a discourse-analytical approach is applied to examine the observable patterns related to environmental themes in the provided exemplary sentences. I have applied semantic prosody to analyze how environment-related words are presented and influenced by their collocates, shaping the discourse. [Louw \(1993, p. 157\)](#) defines semantic prosody as the “consistent aura of meaning” created by collocates, while [Sinclair \(1999\)](#) explains it as the pragmatic meaning conveyed by word usage. [Partington \(1998\)](#) adds that semantic prosody extends

beyond single-word boundaries, spreading connotational coloring. [Stubbs \(1995\)](#) notes that words often collocate with others from specific semantic sets, and [Hunston and Francis \(2000\)](#) confirm that semantic prosody emerges when words frequently co-occur within a particular semantic group. This concept helps to clarify how language in environmental discourse reflects and constructs attitudes toward ecological issues. The top environment-related words in the table—such as “energy,” “land,” “water,” “environment,” “global,” “pollution,” “renewable,” “nature,” “green,” and “climate”—carry both positive and negative semantic prosodies, depending on the context. These words are central to contemporary discourse on sustainability, pollution, and climate change.

Terms such as “renewable” and “green” are frequently paired with hopeful, solution-orientated contexts. For example, the sentences “Hydrocarbon or fossil fuels are non-renewable sources of energy” and “Green energy sources make a green globe” have a positive semantic prosody. The phrases “green energy” and “renewable energy sources” are framed within a discourse of progress and responsibility, contributing to an optimistic view of human intervention in mitigating environmental damage. On the contrary, words like “global” are embedded in contexts that evoke concern, threat, or crisis. Sentences such as “The effects of global warming are very alarming for our life and existence,” reinforce a negative prosody. Furthermore, “People become rootless sometimes due to climate change, river erosion, social discrepancies, or poverty” combines terms with negative connotations (climate change, poverty) suggesting a broader discourse on socio-environmental vulnerability. This intertwines environmental challenges with human social realities, thus constructing a more complex narrative. These words often co-occur with terms that emphasize deterioration or harm, which aligns with discourses warning against environmental degradation.

Many sentences foreground environmental threats or crises, such as pollution, global warming, and the depletion of resources (e.g., Sentences 2, 4, 5, and 6). This suggests that the textbook adopts an environmental urgency discourse, raising awareness of the detrimental impacts of human activity on the planet. Some sentences highlight solutions or mitigation strategies, such as the use of “green energy” or renewable sources (Sentences 1 and 7). This contributes to a discourse that promotes technological innovation and behavior change as pathways to resolving environmental problems. Certain sentences, such as “The many positive impacts to children of having contact with nature” (Sentence 8), reinforce the human-environmental connection, framing nature as beneficial to human development and well-being. This aligns with an ecocentric perspective, which values the intrinsic relationship between humans and the environment.

The concept of ecolinguistics, derived from corpus linguistics, offers valuable pedagogical applications for teaching and learning, particularly in relation to ecological and environmental discourse. Teachers can highlight common terms related to the environment, such as “pollution” and “renewable.” Students can analyze how these words are used, examining, for example, how “global warming” often collocates with negative verbs, encouraging discussions on climate change and promoting the critical analysis of language in environmental discourse. Students can examine contrasts, such as negative views on fossil fuels versus positive associations with green energy, which demonstrate how the media and textbooks influence perceptions and enhance their understanding of environmental vocabulary. Teachers can encourage students to create word maps based on frequent ecological keywords like “green” and “energy”, showing how language reflects ideological positions. This facilitates interdisciplinary learning by linking environmental terms with scientific concepts.

In general, the discourse reflects both environmental degradation and solutions, combining negative and positive semantic prosodies for a nuanced portrayal of environmental issues. Concordances are effective tools to enhance awareness, foster critical thinking, expand vocabulary, and support interdisciplinary learning, making them valuable for language analysis in education.

Word Cloud: Visual Analysis of Ecological Words

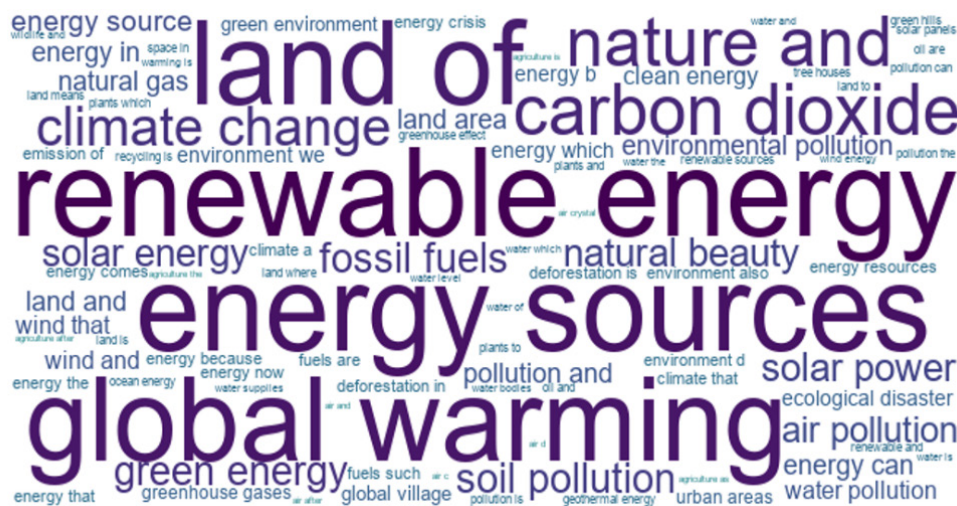
The word cloud (see [Figure 1](#) below) derived from the corpus of “*English for Today Classes Nine-Ten*” presents a visual representation of the principal ecological terms found within the textbook. The dimensions of each term in the word cloud are proportional to its frequency of occurrence, thereby offering a concise yet comprehensive understanding of the salient concepts emphasized in educational material.

Interpretation of Dominant Terms

The textbook's focus on environmental education is emphasized by the most frequently occurring terms, such as "energy," "renewable," "sources," "global warming" and "climate change." These results suggest an exploration of environmental challenges and solutions, as indicated by key terms such as "carbon dioxide," "pollution," "fossil fuels," and "solar power." The word cloud also highlights the textbook's comprehensive approach to discussing the natural environment, as reflected by the prominence of words like "land," "nature," "water," and "air." Furthermore, the textbook covers a wide range of ecolinguistic topics, from specific environmental phenomena ("soil pollution", "greenhouse gases") to broader concepts ("natural beauty", "ecological disaster"). The frequent mention of terms related to clean and renewable energy options ("solar energy", "green energy") indicates an educational focus on sustainable practices. The connection between energy use and environmental impact is highlighted through the recurrence of terms such as "energy" alongside "pollution" and "warming."

Overall, the visualization suggests that the textbook aims to raise awareness about pressing environmental issues and the importance of sustainability, potentially equipping students with the vocabulary required to discuss and understand complex environmental issues. The word cloud also indicates that the textbook seeks to encourage critical thinking about the human-environment relationship and the global impact of energy consumption.

Figure 1. Word Cloud Visualisation of Ecological Words in "English For Today Classes Nine-Ten"



The analysis of the word cloud derived from the textbook "English for Today Classes Nine-Ten" reveals a pronounced concentration on ecological discourse, equipping students with extensive vocabulary related to the environment. Graphical representation accentuates the textbook's dedication to exploring a diverse array of ecolinguistic subjects, consistent with the educational goals that aim to cultivate environmental consciousness and stewardship. This instructive approach manifests itself as a deliberate effort to harmonize environmental literacy within the secondary education curriculum, enabling students to actively engage in environmentally responsible behaviors and discourses.

Conclusions

This study aimed to investigate the representation of ecological aspects in the content of the "English for Today Classes Nine-Ten textbook", which is designed for secondary education in Bangladesh and published by the government. Using various forms of analysis, this study examined how ecological topics were presented in a textbook. Although only two units are specifically devoted to ecological issues, the textbook provides extensive information on environmental indicators such as climate change, greenhouse gas emissions, global

temperature, and energy efficiency, helping learners understand concepts like sustainable development and other environmental issues. Furthermore, the textbook emphasizes the importance of maintaining a harmonious relationship with the natural world and the benefits it provides. The analysis of the corpus of the text revealed a deliberate incorporation of ecolinguistics-related keywords within the educational material. The results indicate that terms associated with sustainability and environmental awareness, including “renewable energy”, “global warming” and “pollution”, are not only present but are given prominent positioning within the textual landscape of the textbook. This highlights a strong commitment to integrating environmental awareness into the language-learning curriculum.

Based on the findings of this analysis, the following recommendations were presented in a formal tone: 1. Curriculum Development: Educators and curriculum developers continue to enrich the ecolinguistic content in English textbooks, with a focus on expanding the themes of sustainability and environmental stewardship. 2. Pedagogical Practices: Teachers are encouraged to use the ecological terms and concepts identified in this study as a springboard for in-depth discussions, critical thinking exercises, and project-based learning about environmental issues. 3. Education policy: Policymakers are urged to recognize the importance of ecolinguistic education and support initiatives that promote the inclusion of environmental issues in language education, thus ensuring that future generations are equipped with the necessary knowledge and vocabulary to engage with ecological challenges.

Suggestions for Future Research

Environment-related themes should be integrated into English textbooks through a comprehensive approach that includes thematic units, green pedagogy [GP], project-based learning [PBL], and the careful selection of relevant literary texts. Thematic units should connect language learning with real-world environmental challenges to effectively engage students ([Mujahidah et al., 2022](#); [Reynolds et al., 2022](#)). Adopting GP is advised to foster critical thinking and enhance students’ awareness of sustainability ([Fox & Wogowitsch 2021](#)). PBL is also recommended to encourage collaboration and active ecological participation ([Setyaningrum & Purwati 2020](#)). Furthermore, the inclusion of literature focused on environmental themes can promote intercultural competence and empathy ([Barabas & Jiang, 2022](#)). It is essential that teachers prioritize professional development to ensure the successful implementation of these approaches ([Alnasser & Almoaily, 2022](#)). Furthermore, the integration of ICT is advised to provide students with access to authentic environmental materials, enriching their overall learning experience ([Gamlo, 2019](#)). Finally, textbooks should reflect diverse cultural perspectives on environmental challenges to facilitate both global and local understanding of ecological issues.

Future research could build on the findings of this study in several ways, including: a) longitudinal analysis: examining the evolution of ecolinguistic content in successive editions of textbooks could provide information on the trajectory of environmental education within language learning materials; b) comparative studies: comparing ecolinguistic content between textbooks for different subjects or age groups could highlight interdisciplinary approaches and gaps in environmental education; c) impact assessment: investigating the impact of ecolinguistic content on students’ environmental attitudes and behaviors would offer valuable data on the effectiveness of environmental education in language learning contexts; d) international perspective: expanding the analysis to include English textbooks from other countries could provide a global perspective on the role of language education in promoting environmental awareness.

The corpus analysis conducted in the course of this study offers a valuable depiction of the current incorporation of ecolinguistics principles within the English language education system in Bangladesh. The appearance of environmental themes within the textbooks signifies a promising shift towards a more environmentally aware and knowledgeable society. This research adds to the scholarly literature on ecolinguistics and serves as a stimulus for educators, curriculum developers, and policymakers to more deeply inculcate environmental literacy within educational frameworks on a global scale.

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