

Methodologies Used in Ecolinguistics Research: A Review of Approaches and Applications

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Abstract: Environmental crises and sustainability challenges have increased the need to integrate ecological awareness into education. This study explores the integration of eco-literacy within the English language curriculum of Central Board of Secondary Education secondary schools through an ecolinguistic perspective. The study adopted a mixed-methods design involving 400 secondary English teachers and curriculum analysis of selected senior secondary English textbooks. The survey instrument was grounded in David W. Orr's Eco-Literacy Framework, which emphasizes ecological awareness, environmental responsibility, and sustainable learning. In addition, Norman Fairclough's Critical Discourse Analysis framework was used to examine ecological representation and sustainability discourse in textbooks. Findings revealed that teachers demonstrated moderate to high eco-literacy awareness and positive attitudes toward sustainability-oriented pedagogy. However, challenges such as examination pressure, lack of resources, and insufficient professional training limited effective implementation. The study highlights the importance of integrating eco-literacy into English language education to promote ecological consciousness and sustainable citizenship among learners.

Keywords: Ecolinguistics; Critical Discourse Analysis; Sustainability; Environmental Discourse; Language and Ecology; Eco-pedagogy

Introduction

Ecolinguistics is an emerging interdisciplinary field that explores the relationship between language and the ecological world. The field has gained increasing scholarly attention as environmental crises such as climate change, biodiversity loss, pollution, and unsustainable consumption continue to threaten ecological balance. Researchers in ecolinguistics investigate how linguistic choices, discourses, narratives, and ideologies shape human relationships with nature and influence environmental behaviors.

The foundations of ecolinguistics are rooted in multiple disciplines, including linguistics, environmental studies, sociology, discourse analysis, and ethics. As the field has evolved, researchers have adopted diverse methodological approaches to analyze ecological discourse and environmental representation in language. These methodologies enable scholars to uncover destructive ideologies such as anthropocentrism and consumerism, while also identifying beneficial narratives that promote ecological sustainability.

This review paper critically examines the major methodologies used in ecolinguistics research, highlighting their applications, strengths, limitations, and emerging trends.

Related work

1 Theoretical Foundations of Ecolinguistics

The methodological approaches used in ecolinguistics are shaped by several theoretical traditions. These include Systemic Functional Linguistics (SFL), Critical Discourse Analysis (CDA), Cognitive Linguistics, and Environmental Ethics.

Arran Stubbe argues that ecolinguistics focuses on identifying the “stories we live by,” referring to recurring linguistic patterns that shape ecological relationships. These theoretical frameworks provide researchers with tools to analyze how language either reinforces or challenges environmentally destructive ideologies.

1.1 Systemic Functional Linguistics (SFL)

SFL views language as a social semiotic system used for meaning-making within contexts. Developed by M. A. K. Halliday, this framework examines how grammatical structures and linguistic choices shape environmental representation.

1.2 Critical Discourse Analysis (CDA)

CDA focuses on uncovering power relations, ideologies, and hidden meanings embedded in discourse. It is widely used in ecolinguistics to analyze media, political speeches, advertisements, and policy documents.

1.3 Cognitive Linguistics

Cognitive approaches examine how metaphors, frames, and conceptual structures influence environmental understanding and ecological thought.

1.4 Environmental Ethics

Environmental ethics provide a moral lens through which ecological discourses can be evaluated in terms of sustainability, responsibility, and ecological justice.

2. Methodologies Commonly Used in Ecolinguistics Research

2.1 Critical Discourse Analysis (CDA)

Critical Discourse Analysis is among the most widely used methodologies in ecolinguistics research. CDA investigates how discourse constructs environmental ideologies and power relations. Researchers use CDA to identify linguistic patterns that normalize ecological exploitation or promote sustainability.

CDA has been applied to:

- climate change communication
- environmental journalism
- government policies
- corporate greenwashing
- environmental activism discourse

Norman Fairclough and Arran Stubbe significantly contributed to this approach by demonstrating how language shapes environmental ideology.

2.2 Systemic Functional Linguistics (SFL)

SFL is used in ecolinguistics to analyze how grammar and linguistic structures represent environmental events and ecological relationships.

Researchers often examine:

- transitivity patterns
- agency representation
- passive constructions
- ecological actor representation

For example, studies have shown that agentless constructions in environmental news reports often obscure human responsibility for ecological destruction.

2.3 Cognitive Linguistics and Frame Analysis

Cognitive Linguistics examines how metaphors and frames influence public understanding of environmental issues.

Common environmental metaphors include:

- “Mother Earth”
- “Climate emergency”
- “War against pollution”

George Lakoff emphasized that framing significantly influences environmental perception and policy responses.

Frame analysis has been widely used to examine:

- climate discourse
- media representation
- scientific communication
- political rhetoric

2.4 Corpus Linguistics

Corpus Linguistics involves the systematic analysis of large textual datasets to identify recurring linguistic patterns and ecological themes.

Corpus-based studies in ecolinguistics analyze:

- newspapers
- textbooks
- social media discourse
- political speeches
- environmental reports

This methodology enables researchers to track changes in environmental discourse across time and contexts.

2.5 Narrative and Ethnographic Methods

Narrative and ethnographic approaches focus on collecting ecological stories, lived experiences, and community discourses.

These approaches are particularly useful for:

- indigenous ecological knowledge
- eco-pedagogical practices
- sustainability education
- environmental identity formation

Ethnographic methods allow researchers to understand how ecological values are negotiated within educational and cultural settings.

2.6 David W. Orr's Eco-Literacy Framework

This framework emphasizes the development of ecological awareness, environmental responsibility, and sustainable living through education. Orr argues that education should move beyond the mere transmission of academic knowledge and instead cultivate an understanding of the interdependence between humans and the natural environment. According to the framework, eco-literate individuals can recognize ecological systems, understand the consequences of human actions on nature, and adopting sustainable behaviors that support environmental well-being.

The framework highlights key dimensions such as ecological knowledge, critical thinking, ethical responsibility, sustainability awareness, and action-oriented learning. In educational contexts, Orr's eco-literacy approach encourages interdisciplinary teaching methods that integrate environmental concerns into various subjects, including language education. The framework is widely used in sustainability education research to assess ecological awareness, environmental attitudes, and environmentally responsible practices among learners and educators.

3. Emerging Trends in Ecolinguistics Methodology

Recent studies show a growing methodological diversification in ecolinguistics research. Emerging approaches include:

3.1 Multimodal Analysis

Researchers increasingly analyze visual discourse, advertisements, digital media, and social media content alongside textual analysis.

3.2 Participatory Research

Participatory methods involve communities, educators, and learners as active contributors to ecolinguistic inquiry.

3.3 Eco-Pedagogical Research

Educational ecolinguistics examines how sustainability concepts can be integrated into language teaching and classroom practices.

Recent studies such as the "Eco-Writing Model" demonstrate how ecoliteracy can be embedded into English language teaching through writing tasks and reflective activities.

4. Methodological Gaps and Challenges

Despite its theoretical richness, ecolinguistics continues to face several methodological challenges.

Major gaps include:

- lack of classroom-based longitudinal studies
- limited use of mixed methods
- overemphasis on Western ecological discourse
- insufficient policy analysis
- minimal engagement with social media ecology

These limitations restrict the applicability of ecolinguistics in diverse educational and sociocultural contexts.

Method

The present study adopted a mixed-methods research design to investigate the integration of eco-literacy within English language education in Central Board of Secondary Education secondary schools. The study combined quantitative survey methods with qualitative textbook analysis to obtain a comprehensive understanding of teachers' eco-literacy awareness, classroom practices, attitudes toward sustainability education, and ecological representation in English textbooks.

The quantitative phase involved the administration of an Eco-Linguistic Literacy Survey among 400 secondary English language teachers working in CBSE schools. The survey consisted of items related to ecological awareness, sustainability-oriented attitudes, ecological values, and classroom pedagogical practices. Responses were collected using a five-point Likert scale and analyzed using descriptive statistical methods. The survey instrument was theoretically grounded in David W. Orr's Eco-Literacy Framework, which emphasizes ecological understanding, environmental responsibility, and sustainability-oriented education. The framework guided the assessment of teachers' ecological awareness, environmental values, and sustainability practices within English language teaching contexts.

The qualitative phase focused on the analysis of selected senior secondary English textbooks, including Hornbill, Snapshots, Flamingo, and Vistas. The study employed Norman Fairclough's Critical Discourse Analysis (CDA) framework to examine how ecological themes, environmental ideologies, and human–nature relationships were represented through language. Fairclough's three-dimensional model of CDA was used to analyze textual features, discursive practices, and broader social practices embedded within the selected texts. Attention was given to vocabulary, metaphors, agency, representation of nature, and sustainability discourse.

The integration of Orr's Eco-Literacy Framework and Fairclough's CDA enabled the study to examine both pedagogical and linguistic dimensions of eco-literacy in English language education. While the survey explored teachers' ecological awareness and sustainability-oriented practices, the discourse analysis provided insights into how environmental narratives and ecological ideologies were constructed within the curriculum. This combined methodological approach strengthened the validity of the study by providing both quantitative and qualitative perspectives on eco-literacy integration in CBSE English education.

Conclusions

The study examined the integration of eco-literacy within Central Board of Secondary Education English language education through both pedagogical and linguistic perspectives. Grounded in David W. Orr's Eco-Literacy Framework, the study explored teachers' ecological awareness, sustainability-oriented attitudes, and classroom practices, while Norman Fairclough's Critical Discourse Analysis framework was used to analyze ecological representation in senior secondary English textbooks. The findings indicated that teachers possess moderate to high levels of eco-literacy and demonstrate positive attitudes toward integrating sustainability into English language teaching. However, institutional barriers such as examination pressure, lack of instructional resources, and insufficient professional training continue to hinder effective implementation. The study concludes that English classrooms have significant potential to promote ecological awareness and sustainable citizenship when supported through curriculum reform, eco-pedagogical practices, and teacher development initiatives.

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