

An Ecological Analysis of Teacher Discourse in EFL High School Classrooms

Juan Dong¹, Jinhong Yu²

¹ School of Foreign Languages, University of Shanghai for Science and Technology, Shanghai, China

Correspondence: Juan Dong, School of Foreign Languages, University of Shanghai for Science and Technology, Shanghai, China.

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Abstract

This study, grounded in theories of Systemic Functional Linguistics and Ecolinguistics, analyzes the ecological discourse of high school English teachers in EFL (English as a Foreign Language) classrooms, thereby exploring the realization mechanisms of ecological educational contents in their classroom discourse. Through corpus extraction and annotation from authentic classroom teaching videos, combined with the integration of teaching moves, ecological contents, and transitivity process types, the study identifies the characteristics of teachers' ecological discourse usage across different teaching moves and their corresponding lexicogrammatical realizations. The findings reveal that teachers' classroom ecological discourse is predominantly concentrated in the main-body pedagogical moves, with a focus on knowledge-oriented and behaviour-related contents, a preference for action-type transitivity processes, and a lack of realizational resources for emotional engagement and interpersonal interaction. Based on these insights, the study proposes pedagogical recommendations to optimize the integration of ecological education in high school English teaching.

Keywords: teacher discourse, EFL classroom, Ecolinguistics, Systemic Functional Linguistics, discourse analysis

1. Introduction

Over the past few decades, humanity's over-exploitation and irrational utilization of natural resources have resulted in the persistent degradation of the natural environment, making environmental issues stand out more prominently, and there has been a growing recognition that ecology and human society share a relationship of harmonious coexistence. In the humanities and social sciences, this has given rise to an 'ecological turn' (Huang, 2016); in the field of linguistics, Ecolinguistics has emerged accordingly (Stibbe, 2015) and has since been applied to the domain of language education. In 2020, UNESCO launched its new ESD program 'Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030)', calling for environmental education to become a core component of teaching curricula in countries around the world. Ecological civilization education in EFL instruction has gradually emerged as a key research focus.

Currently, most existing research on ecological education in EFL teaching focuses on the ecological analysis of English textbook discourses, often overlooking teacher classroom discourse as a crucial avenue for ecological education. Based on theories of Systemic Functional Linguistics and Ecolinguistics, this study analyzes teacher ecological discourse in EFL classrooms by constructing an annotation and analytical framework using authentic EFL high school classroom teaching videos as corpus data. This study addresses the following three research questions:

- 1) What is the connection between teaching moves and ecological contents in high school EFL teacher classroom discourse?
- 2) How is the ecological meaning in high school EFL teacher classroom discourse realized by the transitivity lexicogrammatical system?
- 3) What are the typical realization patterns of ecological meaning in high school EFL teacher classroom discourse?

The first question aims to discover the relation between teaching moves and ecological contents of teacher discourse in high school EFL classrooms. The second question explores the realization of ecological meanings in different types of teacher discourse in EFL classroom contexts at the lexicogrammatical level by analyzing the ecological

significance of teacher discourse through the transitivity system. The third question focuses on the patterns through which teacher classroom discourse fulfills the role of ecological value guidance, based on which suggestions for teaching will be provided. This study holds certain significance for integrating ecological education into EFL classroom teaching, enhancing learners' ecological awareness, and thus promoting their ecologically beneficial behaviours.

2. Literature Review

2.1 *Ecolinguistics and Systemic Functional Linguistics*

The term 'Ecolinguistics' was initially used by Haugen (1970) as a metaphor for the interaction between language and its surrounding sociocultural environments, creating a new model combining linguistics and ecological research, which is recognized as the Haugenian approach. Ecolinguistics is further defined as 'the study of the impact of language on the life-sustaining relationships among humans, other organisms and the physical environment' (Alexander & Stibbe 2014:105). Its mission is to explain how language interacts with environment through investigation into the ecological aspects of language and the connection between language and nature (Huang, 2016). Differing from other approaches to discourse analysis, eco-discourse analysis is characterized by the guidance of a philosophy of ecological values. Naess (1973) first introduces the word 'ecosophy' as an ecological philosophy in pursuit of harmonious relation between human and nature. Stibbe (2015) summarizes the principles of ecosophy as living, especially emphasizing wellbeing, now and the future, care, environmental limits, social justice, and resilience. Based on the Confucian tradition, Huang (2017) proposes that the core of harmonious ecosophy contains the assumption of people-orientedness and the principle of conscience, proximity and regulation. He & Wei (2018: 28) propose the ecosophy of 'diversity and harmony, interaction and co-existence' to conduct ecological discourse analysis within Systemic Functional Linguistics (SFL).

Another significant theoretical framework in Ecolinguistics is the Hallidayan approach. Halliday (1990/2003), the founder of SFL, stresses the connection between language and improper concepts like growthism and suggests that linguists should bear the role to address environmental problems. Distinct from the Haugenian approach, Hallidayan approach mainly focuses on the role of language in ecology and studies ecological problems from the perspective of language. In other words, Hallidayan approach centers on the influence of language on ecology through the analysis of lexico-grammar in discourses and emphasizes linguists' social accountability. As an applicable linguistics, SFL provides theoretical perspectives for ecological discourse analysis with its social semiotic perspective, ideological perspective and discourse construction theories. The notions within SFL involving system, stratification, metafunctions, genre, register, and transitivity will serve as theoretical bases for this study.

2.2 *Integration of Foreign Language Teaching and Ecological Education*

The field of English language teaching has shown growing concern for environmental issues (Cates, 1990). Ghafoor-Ghaznawi (1993) notes the cross-curricular nature of environmental education; Hajer (1995) explores the crucial role of language in addressing environmental problems; Hidalgo, Hall & Jacobs (1995) identify a parallel relationship between environmental perspectives and new trends in language teaching; Orr (2004) states that all education is environmental education in nature; and Stibbe (2004) calls for resistance to discourses that promote environmental destruction in language teaching. China's Ministry of Education, in its Thematic Outline for Environmental Education in Primary and Secondary Schools, requires the infusion of environmental science and moral education into all subject curricula (Yu & Wang, 2004). Li (2018) states that ecological education is largely addressed through general education across various educational stages. Huang (2016) proposes an ecological orientation for foreign language teaching and research, while Miao (2023) suggests practical approaches for value guidance in foreign language classrooms.

2.3 *English Teacher Classroom Discourse Analysis*

Research on ecological education in foreign language teaching has predominantly focused on teaching materials, while teacher classroom discourse that is of significance in the cultivation of ecological awareness in learners remains a relatively under-researched area. Teacher classroom discourse is primarily studied from three perspectives (Cheng, 2009): a linguistic perspective focusing on the linguistic features of English teachers' classroom language (McCarthy, 1991; Yang, 2023); a language teaching perspective concerned with the pedagogical functions of teacher discourse in English classrooms (McCormick & Donato, 2000; Walsh, 2011; Guo & Lu, 2020); and a discourse analysis perspective focusing on the appropriateness and effectiveness of teacher classroom discourse (Christie, 2002; Bloome *et al.*, 2007). Research on foreign language teacher classroom discourse analysis has mostly concentrated on tertiary-level classrooms and the functions of classroom discourse, while empirical studies on how teacher discourse

constructs meaning remain relatively scarce. Most studies on teacher classroom discourse from the perspectives of language teaching and linguistics remain disconnected, with limited research integrating the pedagogical functions and linguistic features of teacher discourse.

In general, there is a disconnection between theoretical studies and teaching practice, with insufficient research on how foreign language education integrates with ecological education in practical implementation. The important role of teacher discourse in ecological education has been largely overlooked. Most studies lack a solid theoretical foundation and systematic analytical framework, focusing mainly on college English teaching while neglecting English education in primary and secondary schools. Therefore, this study adopts SFL and Ecolinguistics as its theoretical basis; by applying ecological discourse analysis based on functional grammar, it explores the realization patterns of teacher classroom discourse for integrating ecological civilization education into high school EFL teaching.

3. Corpus and Methodology

3.1 Data Collection Procedures

This study selected six complete high school English instructional videos (approximately 100 minutes in total) as the corpus foundation from the National Smart Education Platform for Primary and Secondary Schools; these videos are part of an online course series in China. The teaching videos are based on Unit 6 with the theme of 'Nurturing Nature' in the textbook *English* (New Standard, Elective Book 1) produced by Foreign Language Teaching and Research Press in China. This unit is highly representative and broadly applicable; it is centered on the theme of human-nature harmony and is characterized by two key features: a wealth of ecological texts and a standardized teaching design. To focus the research questions, the analysis specifically targeted teacher monologic discourse, excluding interactive segments such as question-and-answer exchanges. The corpus was transcribed and proofread, resulting in a total of 12,053 words. This research examines how teacher discourse conveys ecological education contents. Using the corpus annotation software UAM Corpus Tool, self-designed annotation schemes were constructed to analyze the overall characteristics of the teacher's classroom ecological discourse and the lexico-grammatical realization of its ecological meaning. The corpus of this study is derived from exemplary teaching videos on the national-level education platform, which are universally applicable and offer valuable references. However, due to the inherent limitations of online instruction, both the duration of the lessons and the extent of teacher-student interaction are constrained.

3.2 Analytical Framework

How teachers arrange the move structure of ecological discourse in classroom teaching not only reflects their instructional organizational skills but also indicates the ways in which ecological education concepts are integrated. As a teaching genre, online classroom instruction has its own generic structure. The overall moves of classroom videos include the introduction, the main body, and the conclusion, which can be further specified as: teacher self-introduction ^ topic introduction ^ review of previous lesson ^ introduction of the current lesson's contents ^ introduction of learning objectives ^ (review of previous lesson) ^ (topic lead-in) ^ content delivery ^ homework assignment ^ closing remarks. Teacher discourse encompasses several ecological dimensions: ecological knowledge (understanding of natural ecology), ecological awareness (moral responsibility and emotional connection to nature), ecological attitude (willingness to engage with ecological issues), and ecological behavior (concrete actions toward natural ecology). When combined with teaching sections, such as introduction, language learning, grammar, comprehensive application, text analysis, writing, viewpoints, reflection, and project work, along with discourse functions (explanation, feedback, or instruction) and discourse sources (within or beyond the textbook), the overall characteristics of teachers' ecological discourse can be analyzed (see Figure 2).

The transitivity system realizing the ideational metafunction in SFL can reveal how teachers construct specific types of experiential realities through process types lexico-grammatically. In the context of ecological education, different types of processes correspond to different dimensions of ecological education goals (e.g., behavioral guidance, consciousness-arousing, and relation cognition). Analyzing the process types of teachers' ecological discourses serves not only as an effective means of examining their lexico-grammatical realization but also as a critical perspective for investigating the realization mechanisms of their ecological functions. Based on the experiential process types in ecological discourse analysis proposed by He, Gao & Liu (2021), a process type annotation scheme for teachers' ecological discourse is designed (see Figure 3). The system consists of five subsystems: discourse move, event type, mode, dominance, and ecological orientation. Event types include action processes, mental processes, and relational processes, with each type containing specific sub-types. Mode refers to whether a process arises autonomously or is influenced to be so. Dominance indicates whether the process is

dominated by humans or nature. The three ecological orientations (beneficial, ambiguous, and destructive) refer to the impacts of the process on the ecology; in this study, the process itself rather than the ecological orientation of the entire clause is focused on.

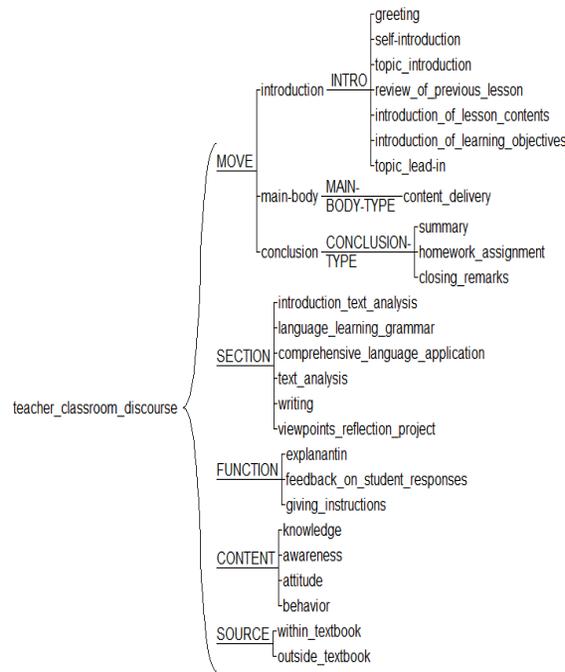


Figure 2. Annotation scheme for teacher’s classroom discourse

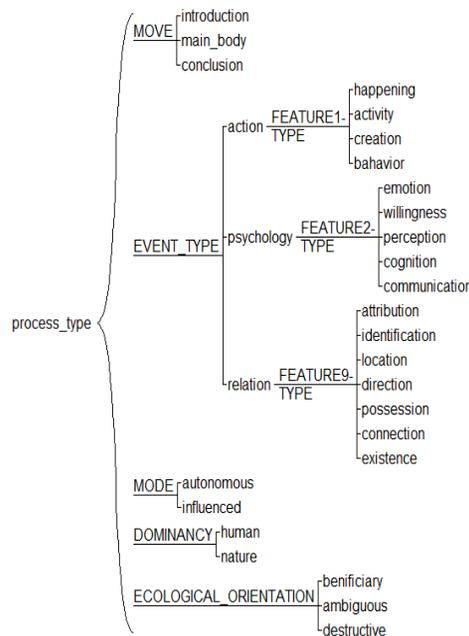


Figure 3. Annotation scheme for process type of teacher’s classroom ecological discourse

4. Findings and Discussion

4.1 Moves and Ecological Contents in Teacher Classroom Eco-discourse

The research results indicate (see Table 1) that teachers’ ecological discourse is primarily concentrated in the main body move of instruction (79.82%), showing a tendency for teachers to reinforce the input of ecological information during the dominant teaching stage. At this stage, ecological context is mainly conveyed through activities such as text explanation, grammar instruction, and background knowledge expansion. It appears that teachers extensively use discourses related to environmental protection, sustainable development, and species conservation, integrating ecological contents as an indispensable component of cognitive knowledge transmission.

Table 1. General feature of teacher ecological discourse in High School EFL classroom

type	move								section						function			content			source		
	introduction				main-body	conclusion			introduction & text analysis	language learning & grammar	comprehensive language application	text analysis	writing	viewpoints & reflection & project	explanation	feedback on student responses	giving instructions	knowledge	awareness	attitude	behavior	within textbook	outside textbook
	topic introduction	review of previous lesson	introduction of the current lesson's content	introduction of learning objectives		topic lead-in	content delivery	summary															
number	1	17	3	16	4	182	2	3	51	33	37	30	47	30	223	2	3	94	17	20	97	126	102
Percentage (%)	0.44	7.46	1.32	7.02	1.75	79.82	0.88	1.32	22.37	14.47	1.23	13.16	20.61	13.16	97.81	0.88	1.32	41.23	7.46	8.77	42.54	55.26	44.74
	17.99						2.2																

A smaller portion of ecological information appears in the introduction move, involving the review of previous lesson (7.46%) and the introduction of learning objectives (7.02%), with a functional focus on introducing the lecture theme and stimulating learners’ ecological awareness. The least amount of teachers’ ecological discourse occurs in the conclusion move (2.20%), indicating a scarcity of summarizing ecological statements. This suggests that teachers often overlook the review and elevation of ecological philosophy during the course concluding phase, creating an imbalanced teaching pattern characterized by ‘strong introduction, intensive infusion, and abrupt truncation’ across the teaching process. The following examples are instances of ecological contents in the introduction and conclusion moves:

Through the study of this unit, I believe you will have a better understanding of the harmonious relationship between man and nature. (Introduction move: introduction of lesson contents)

By the end of the class, you will be able to have a better understanding of the value of diligence, contribution and a sustainable development of ecosystem. (Introduction move: introduction of learning objectives)

In this lesson, we have learned the great efforts the workers had made in building the highest railway in the world, Qinghai-Xizang railway, and protecting the distinct ecosystem. (Conclusion move: summary)

In terms of unit sections, the highest proportion of teachers’ ecological discourse (22.37%) appears in the first lecture’s ‘Introduction’ part, followed by the ‘Writing’ section in the fifth lecture (20.61%), while there are minor differences among the other four sections. It has been found that there appears to be a lack of due attention to in-depth reading and of the textual contents in instruction, particularly in the discussion of the second text for each unit, because teachers tend to overlook the linguistic realizations in the text that may contribute to the cultivation of students’ ecological awareness. Additionally, while ecological texts are also present in the exercises section such as ‘Language Learning’ and ‘Comprehensive Language Use’, teachers tend to treat these texts merely as tools for grammar or vocabulary practice during instruction, without delving into their ecological significance. If these texts were analyzed and taught as instances of ecologically beneficial discourses, teachers could not only impart language knowledge but also teach students how to construct ecologically beneficial discourses. This approach would better

stimulate students' empathy and critical thinking, thereby facilitating a more effective integration of ecological education.

In terms of ecological semantic contents, teachers' ecological discourses primarily involve 'ecological knowledge' (41.23%) and 'ecological behavior' (42.54%), conveying information related to the natural environment and ecological conservation actions through explanation, description, and other means, serving a significant pedagogical and knowledge-imparting function. In contrast, 'attitudes' and 'awareness' discourses involving value orientation and the cultivation of ecological consciousness accounts for merely 8.77% and 7.46% respectively, which is significantly lower than the percentages of the first two categories. This distribution of ecological discourse types reveals an 'instrumental-knowledge-oriented' tendency in teachers' ecological discourse utility. The results indicate that value guidance and emotional engagement in ecological education have not been recognized as explicit objectives in the construction of ecological education discourse.

In terms of function, teachers' declarative ecological statements primarily serve the purpose of instruction (97.81%), with relatively few instances to provide feedback on student interactions or to issue directives. The majority of teachers' discourse is based on the textbook's contents (55.26%), while contents supplemented by the teachers themselves are limited in number, which may be related to the practical constraints of online teaching where class durations are significantly compressed, instructional contents are restricted, and interactivity is relatively weak. This study confirms a link between instruction moves and the distribution of ecological content. It finds that the introduction move primarily conveys discourses related to ecological awareness and attitude, serving to guide value-setting and establish an emotional foundation. The main body move focuses on knowledge and behavior, emphasizing cognitive impartation and behavioral advocacy. In contrast, the conclusion move is characterized by an insufficiency of ecological discourses but also lacks concentration in content types, failing to establish an organic and integrative chain of knowledge-awareness-attitude-behavior.

While high school EFL teachers exhibit a degree of discourse awareness in promoting ecological education, primarily manifested at the knowledge and behavior levels, a functional gap persists in their classroom discourse structure. This gap stems from insufficient emotional engagement and the lack of a closed-loop design, ultimately constraining the integration of ecological education and undermining the value-guidance function essential for achieving ecological awareness objectives. Consequently, instructional designs should place greater emphasis on the construction of ecological discourse functions in the concluding move, which may include reasonable incorporation of realizational resources that may foster ecological consciousness and attitude, refinement of the generic structure of ecological education discourses, and harmonious integration of ecological cognitive instruction and emotional stimulation.

4.2 Transitivity in Teacher Classroom Ecological Discourse

Table 2. Process types of teacher ecological discourse in High School EFL classroom

type	move			event type									mode	dominancy	ecological orientation											
	introduction	main-body	conclusion	action			psychology			relation					beneficiary	ambiguous	destructive									
				happening	activity	creation	behaviour	emotion	willingness	perception	cognition	communication						attribution	identification	location	direction	possession	connection	existence	autonomous	influenced
percentage (%)	15.52	83.19	1.29	0.43	46.57	1.72	0.43	4.31	0.86	10.34	2.16	5.6	17.24	1.72	0	5.6	2.16	0.43	87.07	12.93	77.16	22.84	93.1	1.29	5.6	
				49.15			18.1			32.75																

The statistical results (see Table 2) show that action processes are the most frequently used (49.15%) in teachers' ecological discourse; they are primarily employed to describe human behaviors that are aimed at eco-conservation, advocate for green lifestyles, and display ecological engineering cases. Such processes mainly appear in the major moves of classroom teaching discourse and exhibit distinct action-oriented and prescriptive characteristics. By leveraging action verbs realizing such processes and corresponding participants to directly construct scenarios of ecological behaviors, these processes reflect the particular emphasis teachers place on 'what to do' in ecological education. The following instance occurs in the main body move of the teacher's interpretation of the text. In this

example, the human agent is hidden, while actions realized by verbs such as *protect*, *built*, and *prevent* represent positive measures taken by humans to safeguard wildlife, wetlands, and grasslands.

To protect (action process: behavior) wild animals (beneficiary), thirty-three passages (the created) have been built (action process: creation) under the railway to allow the animals to move safely and freely in their natural habitat to prevent (action process: behavior) damage (the affected) to wetlands and grasslands.

Relational processes account for 32.75% and are mainly used to convey ecological knowledge such as conceptual definitions, categorizations, and state descriptions. They serve as a key lexico-grammatical means for constructing the macro-framework and common-sense system of ecological concepts, which may facilitate students in their cognitive development in terms of the internal relationships and structures of ecosystems. Mental processes account for only 18.10%. The most frequently used mental processes in the corpus include *learn*, *enjoy*, *know*, *develop*, *see*, *find out*, and *understand*. For example, through the psychological process of ‘enjoy,’ the teacher communicates to students the protective measures implemented during the construction of Qinghai-Xizang Railway, alongside the passengers’ genuine appreciation of the scenery.

Thanks to the workers’ efforts, passengers from all over the country have been enjoying (mental process: emotion) these magical landscapes.

Although the core function of mental processes is to guide students to resonate, understand, and empathize ecologically, their low frequency in actual teaching discourse suggests that teachers still lack adequate engagement in constructing ecological attitudes and emotional guidance, with insufficient activation of the ecological significance at the psychological level. The fowling example occurs in the teaching move of introducing the new learning objectives (by relational process *have*, and the mental process *develop*):

By the end of the class, you will be able to have (relational process: possession) a better understanding (the possessed) of the ways to protect the natural heritage sites, and develop (mental: cognition) awareness of environmental protection.

To further analyze the ecological orientation of teachers’ discourse processes, this study classified action processes according to the ‘ecologically beneficial’ criteria from Ecolinguistics. The findings reveal that 93.10% of these processes are human-dominated and ecologically beneficial, for instance, processes realized by *protect*, *build*, *help*, *prevent*, *improve*, *conserve*, and *look after*; whereas 5.60% of the processes are ecologically destructive, for example, processes realized by verbs such as *destroy* and *pollute*, mostly appearing in counterexamples or cautionary contexts. This distribution indicates that teachers generally prefer positive guidance in their ecological behavior discourse by presenting constructive semantics to foster students’ understanding of and identification with ecological actions.

Moreover, there is a notable discrepancy in the distribution of process types used by teachers across different teaching moves. The introductory move is predominantly characterized by the deployment of mental processes to direct students’ attention as well as to stimulate their ecological awareness. The main body move focuses on constructing ecological knowledge and behavioral directives by means of action processes. In contrast, the concluding move displays a scarcity of process types, with an obvious absence in the lexico-grammatical realizations of ecological discourse, failing to fulfill its intended functions of consolidation and review of ecological knowledge and awareness.

Based on the above analysis, it is evident that teachers display a distinct behavior-oriented tendency in the lexico-grammatical construction of ecological discourse, and there is a structural dependence between process type distribution and discourse move structure. However, the deficiencies in mental processes, cognitive guidance, and philosophical elevation in the conclusion move also indicate that the integrity and progression of current teachers’ ecological discourse have yet to form a closed construction mechanism. It is recommended that future teaching practice increase the use of mental processes and modality systems, emphasize the potential of linguistic resources for affective functions, and expand the linguistic means for ecological education from behavioral norms to value identification.

4.3 Typical Realization Modes of Teacher Classroom Ecological Discourse and Teaching Suggestions

Based on the above analysis, three typical modes through which ecological education is realized in high school EFL classrooms by means of teacher discourse can be preliminarily identified. Each mode exhibits a specific arrangement of discourse moves, a distinct orientation in ecological contents, and corresponding lexico-grammatical realizations, collectively forming common pathways for teachers’ classroom ecological discourse. The recognition of these discourse realization modes contributes to the revelation of the current pedagogical language strategies for ecological

education, and meanwhile provides theoretical support and practical inspiration for the subsequent optimization of the design and use of ecological discourses.

The first type is the cognitive introduction model of ecological discourse. It primarily appears in the introduction move, aiming to build the social value background of the course theme by arousing students' attention to and reflection on ecological issues. Its semantic contents focus on ecological awareness and ecological attitude, which are mainly realized by mental processes (e.g. *learn, develop, understand*) and possessive relational processes (e.g. *have*) at the lexico-grammatical stratum. This model reflects how teachers guide students to form ecological cognitive presuppositions and emotional expectations through topic introduction, scenario depiction, and emotional stimulation during the initial phase of instruction. Although this model occupies a limited proportion in current classroom practice, its role in guiding social values and motivating learning should be fully recognized.

The second type is the behavior-oriented model of ecological discourse. This model represents the most frequently used form of ecological discourse by teachers during the main-body move, aiming to clarify ecological initiatives and communicate related knowledge and factual information to learners. This discourse type focuses semantically on ecological knowledge and ecological behavior, accounting for 79.82% of all ecological discourse. Lexico-grammatically, it is primarily realized by material processes to convey feasible behavioral suggestions or intervention measures for environmental conservation. The coupling between grammatical realizations and semantic contents in this type reflects the current structure of English classrooms which centers on knowledge transmission and behavioral norms in ecological education. However, this model tends to overlook students' subjectivity and value engagement.

The third type is the value-elevating model of ecological discourse which should primarily appear in the concluding move, aiming to summarize ecological topics, deepen value identification, and stimulate emotional transfer. It should be realized by relational and mental processes to consolidate attitudes and reinforce cognition, mainly focusing on ecological awareness and ecological attitude. However, this model is relatively scarce in the actual teaching practice, with ecological discourse in the conclusion move accounting for only 2.20% as revealed by this study. It appears that teachers fail to effectively complete the integrative educational process of knowledge-emotion-behavior through linguistic means during the conclusion move of the lesson. The lack of emotional and value articulation in pedagogical language hinders the internalization of students' ecological philosophy.

Based on the summarized typical models, and to better integrate ecological education into language classrooms, this study proposes constructing a comprehensive ecological discourse move chain. This is necessary because teachers' ecological discourse is currently concentrated in the main teaching move, while the value-setting function of the introduction and the emotional elevation of the conclusion are relatively absent. In the introduction move, mental processes can be leveraged to stimulate students' interest in ecological issues and knowledge and identification with ecological philosophy; in the main body move, material processes can facilitate knowledge transmission and behavioral construction, and in the conclusion move, relational processes and modality can be employed to summarize, reflect on, and transfer ecological notions and values. Additionally, it is recommended that the semantics and lexico-grammatical realizations of teachers' ecological discourse should be optimized to enhance the coupling between cognition and emotion. Teachers' ecological discourse is generally featured by an emphasis on behavioral and knowledge-related expressions while overlooking attitude and awareness-related contents. It is suggested that the combination of ecological awareness and mental process be consciously utilized in the classroom by using emotive linguistic resources to build students' emotional connection with nature.

5. Conclusion

Grounded in theories of SFL and Ecolinguistics, an ecological analysis of teacher discourse in high school EFL classrooms has been conducted by deploying authentic teaching videos as corpus. It has been revealed that there is close connection between teaching moves and the distribution of ecological contents of teachers' ecological classroom discourse. Teachers' ecological discourse primarily appears in the main body move of teaching process, indicating a tendency to reinforce the input of ecology-related information during the dominant teaching move. Ecological knowledge about environmental protection, sustainable development, and species conservation is mainly conveyed by means of teaching activities such as text explanation, grammar instruction, as well as background knowledge expansion, integrating ecological contents as an organic part of knowledge transmission. For contrast, much smaller portion of teacher's ecological discourse occurs in the introduction and conclusion moves, indicating an imbalance in the presentation of ecological contents in high school EFL classrooms.

In terms of the lexico-grammatical realization of the ecological meanings of teachers' ecological discourse, teachers frequently use action processes to create eco-friendly scenarios. They also prefer relational processes to construct the

framework and system of ecological concepts, facilitating students understand ecosystem relationships. However, the low use of mental processes suggests that teachers may lack sufficient engagement in constructing ecological attitudes and providing emotional guidance for learners.

Three typical realization models of teacher classroom ecological discourse have been summarized: the cognitive introduction model, the behavior-oriented model, and the value-elevating model. The discursive realization of ecological education should not be treated as a mere value-added attachment isolated from classroom teaching contents. It should be integrated as an intrinsic part of the language system in English teaching. Constructing a value-oriented ecological discourse system is a practical means of achieving the strategic goal of ecological education which means shaping character through language and conveying values through discourse. In future research, the corpus will be expanded to include more interactive classroom materials featuring different teachers and instructional content to better summarize the models for integrating ecological education into English teaching.

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Author contributions

Dr. Juan Dong was responsible for study design, data collection and analysis, as well as the drafting and revision of the manuscript. Prof. Jinhong Yu was responsible for corpus transcription and data analysis.

Both authors read and approved the final manuscript.

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No additional data are available.

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References

- Alexander, R., & Stibbe A. (2014). From the analysis of ecological discourse to the ecological analysis of discourse. *Language Sciences*, 41(Part A): 104-110. <https://doi.org/10.1016/j.langsci.2013.08.011>
- Bloome, D., Carter, S., Christian, B., Madrid, S., Otto, S., Shuart-Faris, N., & Smith, M. (2007). *Discourse analysis*

- in classrooms*. Teachers College Press.
- Cates, K. (1990). Teaching for a better world: Global issues in language education. *The Language Teacher*, 14(5), 3-5.
- Cheng, X. T. (2009). *An analysis of English teachers' classroom discourse*. Shanghai Foreign Language Education Press.
- Christie, F. (2002). *Classroom discourse analysis: A functional perspective*. Continuum.
- Ghafoor-Ghaznawi, A. (1993). Environmental education: Recent trends and perspectives. Paper presented at the Seminar on Education for Environmental Competence, Singapore.
- Guo, H. W., & Lu, J. W. (2020). A contrastive study of classroom meta-discourse of teachers. *Modern Foreign Languages*, 43(2), 248-259.
- Hajer, M. (1995). *The politics of environmental discourse: Ecological modernization and the policy process*. Clarendon Press.
- Halliday M. A. K. (1990/2003). New ways of meaning: The challenge to applied linguistics. In J. Webster (Ed.), *Collected Works of M. A. K. Halliday. Vol. 3: On language and linguistics* (pp.7-36). Continuum.
- Haugen, E. (1970). *On the Ecology of Language. Talk delivered at Conference toward the Description of the Language of the World*. Burg Wartenstein, Austria.
- He, W., & Wei, R. (2018). Diversity and harmony, interaction and co-existence — Ecosophy for international ecological discourse analysis. *Foreign Language Research*, 205(6), 28-35.
<https://doi.org/10.16263/j.cnki.23-1071/h.2018.06.006>
- He, W., Gao, R., & Liu, J. H. (2021). *Studies in new developments of ecological discourse analysis*. Tsinghua University Press.
- Hidalgo, A. C., Hall, D., & Jacobs, G. M. (1995). *Getting started: Materials writers on materials writing*. SEAMEO Regional Language centre.
- Huang, G. W. (2016). The emergence and development of Ecolinguistics. *Foreign Languages in China*, 13(1), 1+9-12.
- Huang, G. W. (2017). One assumption and three principles for ecological analysis of discourse and behaviour. *Foreign Language Teaching and Research*, 49(06):880-889+906.
- Li, Z. J. (2018). *Key concepts in ecological civilization*. China Forestry Publishing House.
- McCarthy, M. (1991). *Discourse analysis for language teachers*. Cambridge University Press.
- McCormick, D., & Donato, R. (2000). Teacher questions as scaffolded assistance. In J. Hall & L. Verplaetse (Eds.), *Second and foreign language learning through classroom interaction* (pp. 183-201). Lawrence Erlbaum.
- Miao, X. W. (2023). Practice of value guidance from the perspective of ideological and political education in foreign language curriculums. *Foreign Languages and Their Teaching*, 333(6), 20-27.
<https://doi.org/10.13458/j.cnki.flatt.005014>
- Naess A. (1973). The shallow and the deep, long - range ecology movement. *Inquiry*, 16(1), 95-100.
<https://doi.org/10.1080/00201747308601682>
- Orr, D. W. (2004). *Earth in mind: On education, environment and the human prospect*. Island Press.
- Stibbe, A. (2004). Environmental education across cultures: Beyond the discourse of shallow environmentalism. *Language and Intercultural Communication*, 4(4), 242-259. <https://doi.org/10.1080/14708470408668875>
- Stibbe, A. (2015). *Ecolinguistics: Language, ecology and the stories we live by*. London: Routledge.
<https://doi.org/10.4324/9781315718071>
- Walsh, S. (2011). *Exploring classroom discourse: Language in action*. Routledge.
<https://doi.org/10.4324/9780203827826>
- Yang, X. Y. (2023). *Modelling interactivity of teacher discourse in EFL classrooms: A systemic-functional perspective*. Fudan University Press.
- Yu, C. M., & Wang, Y. X. (2004). *Environmental ethics*. Higher Education Press.