

Constructing Ecological Awareness Through Transitivity: An Ecological Discourse Analysis Of A Ted Talk

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Abstract—This study examines how transitivity features construct ecological meanings in Xiaowei R. Wang's TED Talk "Why entrepreneurship flourishes in the countryside." Drawing on Systemic Functional Linguistics and ecosophy theory, the analysis focuses on process types, participant roles, and circumstantial elements, using UAM CorpusTool for clause-level annotation. The findings show a dominance of material and relational processes that foreground rural agency, sustainable practices, and ecological identity. Participant roles such as Actor and Goal emphasize action and consequence, while circumstantial elements anchor ecological actions in time, place, and cause. The ecological orientation analysis reveals that ecologically beneficial clauses often align with grassroots innovation, whereas ecologically destructive clauses reflect systemic pressures like industrialization. This interplay of linguistic structure and ecological meaning demonstrates how language can construct ecosophical values such as harmony, stewardship, and interdependence. The study contributes to ecological discourse analysis by offering an integrated approach to examining how public discourse fosters ecological awareness and reimagines the countryside as a site of environmental innovation and sustainability.

Keywords: Ted Talks, Ecological Orientation, Transitivity Features; Ecological Awareness

I. INTRODUCTION

In the face of the growing global ecological crisis, language has become a key tool for shaping public perception, awareness and action on sustainable development (Wu, 2018). With the frequent emergence of environmental issues such as climate change, biodiversity loss, and rural land loss, people are increasingly concerned about how ecological issues are constructed and communicated in discourse. TED Talks, as a globally influential platform for public communication, has been effective in communicating environmental issues to a wide range of audiences through the combination of scientific insights and compelling narratives (Sugimoto & Thelwall, 2013). Among them, Wang's TED talk 'Why entrepreneurship flourishes in the countryside' offers a unique perspective, linking ecological sustainability to rural innovation and digital infrastructure development. The talk not only depicts the countryside as a natural space with ecological value, but also shows its potential as a site of socio-economic transformation. The interaction between environment, technology and community raises the central question of how language constructs and communicates ecosophy values in discursive practice - i.e., development concepts that prioritise the harmonious coexistence of nature, technology and humans.

This study explores the following three core questions:

What kind of language choices are reflected in the transitivity feature of this speech discourse?

What types of ecological orientations are expressed in the speech discourse?

(iii) How do these ecological orientations, through the interaction between transitivity features and ecological meanings, co-construct the ecosophy of the speech? This research is based on the theory of Systemic Functional Linguistics (SFL), with a particular focus on the transitivity system, which provides a systematic analytical framework for examining how language achieves experiential meaning. At the same time, an ecosophy perspective in deep ecology proposed by Naess (2019) is combined to analyse how ecological positions are constructed in discourse through process types, participant roles and circumstantial roles. This study uses UAM CorpusTool to analyse the texts of selected TED talks on a sentence-by-sentence basis in order to identify transitivity features in the speech discourse and to assess

its ecological orientation. The aim of this study is to reveal how the transitivity system is used in the discourse of TED environmental talks to reflect ecological awareness and convey ecosophy concepts to the public. It also explores the construction of a multidimensional narrative of the countryside as a space of environmental values, to deepen the understanding of the role of language in shaping the public's ecological awareness and promoting sustainable development. This study examines how public discourse constructs the rural environment as an ecological space of ecological value, economic viability, and social innovation through language structure, aiming to provide new perspectives and practical support for environmental communication research and eco-linguistics.

II. PROBLEM STATEMENT

As ecological discourse enters the realm of public communication (Penz & Fill, 2022), especially on online platforms such as TED TALKS, understanding the ways in which language shapes the public's ecological consciousness has become a pressing academic topic. While many studies have focused on environmental rhetoric in texts on scientific or political topics, little attention has been paid to how popular online speeches integrate ecological meaning into discussions of ecology, technology, and rural development. Particularly noteworthy are TED environmental talks that focus on the countryside and ecology, such as Wang Xiaowei's 'Why entrepreneurship flourishes in the countryside,' which introduces a complex narrative of ecological, economic, and technological values intertwined in an environmental narrative. Although such speeches have the potential to influence public ecological awareness, there is still a gap in exploring how linguistic features (especially the transitivity system) work in synergy with ecosophy to construct ecological orientations in discourse. Current literature rarely explores the linguistic mechanisms of how ecological values are transmitted in public speech contexts. In addition, few studies have combined systemic functional linguistics with ecosophy to systematically analyse how discourse reflects and shapes perceptions of ecological sustainability in relation to rural entrepreneurship. This study fills this gap by examining the interplay between transitivity features in Wang's speech discourse and the ecological orientation of the discourse, aiming to reveal how linguistic choices influence the construction of ecosophy views in public environmental discourse.

III. LITERATURE REVIEW

In recent decades, discourse analysis has become an important tool for the public to understand how language constructs knowledge about the environment and conveys values and ideologies (Cheng, 2022). Within this framework, the transitivity system in Systemic Functional Linguistics (SFL), developed by Halliday (1994), provides an effective method for examining the way experiential meaning is encoded in clauses (Gong & Liu, 2018). Numerous studies (e.g., Thompson, 2017; Wang, 2015) have shown that the use of different process types, participant roles, and circumstantial roles reflects how speakers interpret reality, human subjectivity, and responsibility in environmental discourse. Particularly in texts that present ecological phenomena and human-environment interactions, material and relational processes tend to dominate (Luan & Zhang, 2024). In addition to SFL, the field of eco-linguistics offers a complementary perspective by focusing on the ideology of environmental discourse (Zuo, 2019). The ecosophy framework proposed by Stibbe (2024) encourages analysts to explore the potential value of discourse in shaping the public's ecological worldview, such as connectivity, sustainability of development, and human respect for the natural world. Previous studies (e.g., Fill & Penz, 2017; Zhou & Huang, 2017) have employed an ecosophy lens to explore whether language choices express ideologies embedded in ecologically beneficial discourses, ecologically ambivalent discourses, or ecologically destructive discourses. These frameworks reveal the connection between language choice and the ecological orientation of discourse. In addition, TED Talks have become an important resource for discourse analysis research due to their accessible language style, global reach, and expressive rhetorical features (Romanelli et al., 2014). Although a number of scholars have studied environmentally-themed TED Talks (e.g., Ratanakul, 2017; Kraisriwattana & Poonpon, 2021), revealing the persuasive strategies and thematic frameworks involved, these studies have tended to ignore the linguistic mechanisms underlying the construction of ecological awareness. Currently, studies that systematically combine transitivity system and ecosophy in systemic

functional linguistics to explore the linguistic features of TED environmental keynote speeches at the clause level are still scarce. Therefore, although existing studies provide theoretical foundations for understanding ecological discourse, especially explored under the framework of systemic functional linguistics (SFL) and ecosophy, there is still a gap in integrating and applying these two theories to the public discourse arena. To fill this research gap, this paper takes Wang Xiaowei's TED talk "Why entrepreneurship flourishes in the countryside" as the object of analysis, in order to explore how transitivity and ecological awareness can collaborate to construct ecological wisdom values in the text of the talk, and then reveal the potential role of language in promoting ecological awareness in the context of countryside innovation and sustainable development.

IV. METHODOLOGY

This study adopts a qualitative discourse analysis method that combines Systemic Functional Linguistics (SFL) and ecosophy theory to explore how ecological values are constructed through language in TED Talks. Specifically, the study examines the interaction between transitivity features and ecological orientations in Xiaowei R. Wang's talk 'Why entrepreneurship flourishes in the countryside'. The theoretical framework combines Halliday's (1994) SFL transitivity system, which analyses small sentences in terms of process type, participant roles and circumstantial roles, with Stibbe's (2024) ecosophy theory, which assesses discourses according to their ecological orientation and classifies them into three categories: ecologically beneficial, ecologically ambivalent and ecologically destructive). The integration of these frameworks allows for a multi-level analysis of linguistic form and ecological meaning. The data sample consists of the complete text of the TED talk, including 98 clauses. The text is transcribed from the official TED website and broken down sentence by sentence using the UAM CorpusTool. Each clause is labelled according to three components: process type (material, mental, relational, etc.), participant role (actor, vehicle, perceiver, etc.), and circumstance (where, how, why, etc.). After the transitive annotation, the ecological orientation of each clause is examined based on its semantic content, using Stibbe's ecological wisdom-based evaluation criteria. The clauses are coded as ecologically beneficial, ecologically ambivalent, or ecologically destructive based on their attitude towards the environment. The aim of this analysis is to identify the main linguistic patterns in the transitivity system and link them to the construction of ecological meaning. By combining grammatical analysis with ecological interpretation, this study attempts to reveal how speakers use language to construct rural entrepreneurship as an ecologically meaningful and socially responsible practice.

V. FINDINGS & DISCUSSIONS

This study investigates the transitivity features and ecological orientations in the TED Talk "Why entrepreneurship flourishes in the countryside", aiming to reveal how language structures support the construction of ecosophy. Based on clause-by-clause analysis using UAM CorpusTool, the findings are categorised into three core areas: process types, participant roles, and circumstantial roles, each bearing significance in constructing ecological meaning.

● Distribution of Process Types

A total of 172 clauses were annotated, among which material processes were the most frequently employed (54), followed by relational processes (22), mental processes (14), verbal process (3) and existential and behavioural processes (4 and 1 respectively) (see Table 1).

TABLE 1.

DISTRIBUTION OF PROCESS TYPES IN TED TALKS

Process Types	Material	Relational	Mental	Existential	Behavioral	Verbal	Total
Amount	54	22	14	4	1	3	98

Material processes occur most frequently in the data, reflecting a strong emphasis on actions and tangible practices within rural ecological contexts. These processes often depict rural actors performing meaningful activities that signal environmental agency. For example, in the clause "The villagers took things into their

own hands,” the process verb “took” represents deliberate and agentive intervention in local ecological governance. Similarly, “People are building small-scale food systems” highlights the proactive role of rural communities in creating sustainable food infrastructures. The dominance of material processes therefore supports the speaker’s effort to construct a discourse of grassroots ecological action. Relational processes, the second most common type, function primarily to define, identify, and characterize rural environments and actors. For instance, “The countryside is a place of knowledge and invention” uses a relational identifying process to reframe the countryside as a site of creativity and ecological value. These relational clauses contribute significantly to the construction of rural identity and align with ecosophical principles that stress harmony and co-existence. Material processes were dominant, indicating a discourse grounded in action, transformation, and ecological engagement. These were primarily used to construct rural actors as active agents of change:

E.g., “People are building small-scale food systems.” (Material – ecological beneficial)

E.g., “The villagers took things into their own hands.” (Material – ecological beneficial)

These material processes support the narrative of rural agency, showing how local communities are not passive recipients of top-down development but active participants in ecological and economic transformation. Their high frequency underscores the talk’s emphasis on practical, visible change over abstract theorizing. Relational processes, while less frequent, were also central to meaning-making:

E.g., “The countryside is a place of knowledge and invention.” (Relational – ecological beneficial)

Such clauses serve to redefine and reframe the countryside in positive ecological and social terms. They support a shift in rural identity construction, away from deficit-based views toward an asset-based, relational perspective that aligns with ecosophical values.

● Distribution of Participant Roles

As shown in Table 2, a total of 158 participants were identified. Among them, Goal (37) and Actor (38) dominate the participant landscape, suggesting that the discourse focuses on what actions are taken and what outcomes are achieved. Carrier (19) and Attribute (23) were also prominent, further reflecting how qualities and identities are assigned to entities, such as technology, land, or community.

TABLE 2. DISTRIBUTION OF PARTICIPANT ROLES IN TED TALKS

Participant Roles	Actor	Goal	Attribute	Carrier	Phenomenon	Senser
Amount	38	37	23	19	14	11
Participant Roles	Existent	Sayer	Receiver	Possessor	Possessed	Range
Amount	4	3	3	2	2	2
Total	158					

The relatively fewer instances of Senser (11) and Phenomenon (14), along with sparse representation of Existent (4), Sayer (3), Receiver (3), Possessor, Possessed and Range (both of them are 2) demonstrate a discourse inclined more towards external action and classification than internal reflection or narration. This indicates a narrative that builds ecological ethos through observable outcomes and attributed characteristics rather than subjective interpretations. The predominance of Goal and Actor roles indicates a discourse strongly oriented towards processes of doing and being affected—essential components of ecological interaction and transformation. For example, in the clause “They started building their own farm machinery,” the participants “They” (Actor) and “farm machinery” (Goal) reflect an ecological narrative where local actors generate practical environmental solutions. Similarly, the use of Goal roles such as in “...plastic packaging for shipping” illustrates how materials and goods are embedded within broader environmental processes and systems of consumption. Carrier and Attribute roles are equally important in framing rural spaces and practices in positive or negative terms. For instance, “The land is a place of relations” features a Carrier–Attribute structure that metaphorically positions the land as a relational entity, which is central to ecosophical thinking. These roles contribute to constructing ecological identities and values, highlighting the symbolic and affective meanings embedded in rural

landscapes. The high frequency of Goal and Actor roles suggests an action-oriented discourse where rural people are not just subjects of development but agents performing significant ecological and economic actions. For instance:

E.g., “They started building their own farm machinery.” (Actor: They; Goal: farm machinery)

E.g., “I’ve seen similar dynamics across the US and China.” (Actor: I; Goal: similar dynamics)

Such participant configurations underscore the theme of agency, innovation, and systemic change, as rural actors initiate and shape transformation.

Carrier-Attribute structures were often used to assign values to rural spaces:

E.g., “The land is a place of relations.” (Carrier: The land; Attribute: a place of relations)

This pattern reflects the speaker’s intention to promote ecological identity and relational thinking, hallmarks of ecosophical discourse.

Circumstantial Elements and Ecological Orientation

Table 3 shows that a total of 49 circumstantial roles were identified in the TED Talk, with location (18 instances), manner (9), and time (6) being the most frequently used types. These circumstantial elements serve to situate processes in concrete experiential settings, anchoring the speaker’s ecological narrative in the where, how, and when of rural practices and environmental transformations.

TABLE 3. DISTRIBUTION OF CIRCUMSTANTIAL ROLES IN TED TALKS

Circumstantial Roles	Location	Manner	Time	Extent	Purpose
Amount	18	9	6	5	3
Circumstantial Roles	accompaniment	Condition	Cause	Frequency	
Amount	2	1	3	2	
Total	49				

The predominance of location circumstances reflects the speaker’s effort to highlight the importance of physical rural spaces in ecological change. For example, in the clause:

“So what you’re seeing here are pearl ponds in rural Zhejiang.”

The location phrase “in rural Zhejiang” situates the ecological phenomenon within a geographically specific, culturally rich, and economically active countryside. This kind of locative expression contributes to the recontextualization of the countryside from a marginalized periphery to an active site of ecological entrepreneurship. Manner circumstances often describe how ecological or entrepreneurial activities are carried out, for instance:

“...preserved in formaldehyde and shipped off all the way to places like rural Indiana...”

The use of “preserved in formaldehyde” not only conveys the means of preparation but also hints at ecologically destructive practices due to chemical preservation methods—framing rural ecological processes within global consumption chains. Time circumstances help contextualize ecological actions across scales. Phrases such as “on the day that I visited” and “for years” provide temporal anchoring that supports long-term or historical perspectives on environmental change. These temporal frames allow the discourse to construct a narrative of transformation, either in the direction of recovery (as in sustainable farming) or decline (as in soil degradation). Moreover, although less frequent, cause (3 instances), purpose (3), extent (5), and accompaniment (2) also carry significance. For example:

“Because they can’t compete at a global scale against industrial farms...”

This clause justifies ecological decisions such as transforming farmland into pearl ponds, but also reveals systemic ecological pressures—namely, global agribusiness models that marginalize small-scale farmers. Such uses of causal circumstances construct a critical ecological narrative, highlighting the socio-economic forces behind environmental shifts.

TABLE 4. ECOLOGICAL ORIENTATION IN TED TALKS

Ecological	Ecologically	Ecologically	Ecologically
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Orientation	Beneficial	Ambivalent	Destructive
Amount	21	16	12

In terms of ecological orientation, the results reveal a diverse discursive landscape: out of 49 relevant clauses, 21 were coded as ecologically beneficial, 16 as ecologically ambivalent, and 12 as ecologically destructive (see Table 4). Beneficial clauses often featured material processes enacted by rural actors in local, sustainable settings. For instance:

“The villagers took things into their own hands... started practicing organic farming.”

(Material process + Ecologically Beneficial)

This clause illustrates the agency of rural communities in implementing low-impact ecological solutions, aligning closely with ecosophy’s principles of local stewardship and harmony with nature.

Ambivalent clauses typically emerged in discussions where technological intervention was introduced without clearly defined ecological outcomes. For example:

“Online pearl parties are truly an internet-enabled phenomenon.”

This clause normalizes digital commerce linked to pearl farming, but its ecological consequences remain undefined—thus creating semantic ambiguity regarding sustainability.

Ecological destructive orientations were often associated with industrial farming, over-reliance on technology, or environmental degradation:

“They noticed a decline in their soil quality under these modern protocols.”

(Relational process + Circumstance of manner – Ecologically Destructive)

Such expressions critically reflect how modern agricultural interventions may damage long-standing ecological systems.

In summary, the circumstantial roles and ecological orientations in this TED Talk demonstrate that Wang’s discourse does not merely describe entrepreneurship or rural development. Rather, it constructs a layered ecological narrative, where language encodes values, positions, and tensions between sustainability, innovation, and exploitation. These findings reinforce the argument that language is not just reflective but constitutive of ecological worldviews (Stibbe, 2024), and that transitivity analysis—especially through the lens of circumstantial choice and ecological stance—can effectively reveal how public discourse shapes ecological awareness.

VI. CONCLUSION AND IMPLICATIONS

This study set out to examine how ecological awareness and ecosophical values are constructed in Xiaowei R. Wang’s TED Talk “Why entrepreneurship flourishes in the countryside” through the lens of transitivity analysis. Addressing the first research question, the findings reveal that material processes dominate the discourse, followed by relational and mental processes, highlighting the speaker’s focus on tangible ecological actions, identity attribution, and the cognitive dimensions of rural innovation. Participant roles such as Actor, Goal, Carrier, and Attribute frequently appear in association with these processes, reflecting an action-driven and value-constructive discourse. Circumstantial elements such as location, manner, and cause further contextualize these processes, anchoring them in spatial, qualitative, and causal relationships relevant to rural ecologies. Regarding the second research question, the ecological orientation analysis demonstrates that ecologically beneficial clauses are most often realized through material and relational processes that foreground sustainable practices, local knowledge, and community-based stewardship. Meanwhile, ecologically ambivalent and harmful clauses tend to coincide with existential or verbal processes and highlight tensions around industrialization, digital infrastructure, and top-down policy interventions. These ecological orientations reflect the speaker’s nuanced stance, portraying both the possibilities and contradictions embedded in the intersection of rural development and technology. In response to the third research question, this study shows that ecosophical values—such as diversity, interdependence, and ecological stewardship—are constructed through the interplay of transitivity patterns and ecological meanings. The talk advances an ecosophy-informed vision of rural entrepreneurship, not as a purely economic endeavor but as a form of environmental regeneration and

social innovation. Transitivity choices, particularly those that emphasize collective agency, relational identity, and ecological cause-effect logic, play a central role in shaping this discourse.

The implications of these findings are twofold. First, they affirm the role of language as a semiotic resource for ecological advocacy, showing how syntactic and semantic features can be mobilized to promote sustainability narratives in public discourse. Second, the study contributes to ecological discourse analysis (EDA) by offering an integrated analytical framework that combines systemic functional linguistics with ecosophy to evaluate not only what is said, but how it aligns with broader ecological worldviews. This framework can be applied to other forms of environmental discourse—both in media and policy settings—to critically assess whether language supports or undermines ecological integrity. In sum, the TED Talk analyzed in this study serves as a compelling example of how rural spaces can be discursively reimaged through language as sites of ecological innovation, social resilience, and sustainable futures.

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