
RESEARCH ARTICLE

A Corpus-driven Study of the Ecological Discourse Analysis of Energy Narrative in News: *The New York Times* as Example

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ABSTRACT

The reductions in economic activities and mobility during the COVID-19 pandemic heavily challenged the global energy sector, due to which an energy crisis began to unfold in 2021. Under this social background, the linguistics community pay more and more attention to energy narrative in discourse. Based on Stibbe's definition and Fairclough's three-dimensional model, this study combined quantitative and qualitative methods to analyze the ecological discourses of *the New York Times* reported during the energy crisis. This study found that the selected news discourses contain ecologically destructive elements and use the "Erasure of causality" strategy more frequently. Ecological discourse analysis of news discourse is conducive to deconstructing ecological destructive discourse and helping the public to further distinguish misleading and deceptive energy reports.

KEYWORDS

Ecological discourse analysis; energy crisis; news discourse; *The New York Times*

ARTICLE INFORMATION

ACCEPTED: 15 September 2023

PUBLISHED: 04 October 2023

DOI: 10.32996/ijllt.2023.6.10.8

1. Introduction

The reductions in economic activities and mobility during the COVID-19 pandemic heavily challenged the global energy sector, due to which an energy crisis began to unfold in 2021. As energy is central to the functioning of modern human society and a variety of ecosystems, such instability and unpredictability affect society as a whole, with different forms of media framing the issue differently and actively reshaping the contemporary cultural politics of climate change discourse.

In this context, the increasing awareness of the media's impact on social attitudes towards environmental degradation and climate change has produced an influx of research examining the intersections between the media and climate change (Boykoff & Boykoff, 2004; O'Neill, 2020). As noted by Fleming et al. (2014), while the influence of language on environmental communication is well known, this understanding is underemployed in understanding how ecological discourses may help or prevent action in response to climate change. Therefore, An increasing body of research has examined media discourses from an ecolinguistic perspective (Ponton & Sokół, 2022; Zhang et al., 2023). The narratives encased within these discourses may signal linguistic patterns that promote environmentally destructive or ambivalent framings that can provide insight into how we conceptualize and interact with the natural world (Stibbe, 2015). Based on all mentioned above, the research on ecological discourses concerning climate change has both theoretical as well as practical significance.

Emerging as a part of a broader ecological turn within the humanities and social sciences (Stibbe, 2015), ecolinguistics focuses on the relationship between language and the environment, as well as the way in which they mutually influence one another. In other

words, ecolinguistics concerns the narratives that underpin our current unsustainable way of living, aiming to expose the discourses that are either implicitly or explicitly encouraging ecological destruction and social injustice (Stibbe, 2014).

Therefore, this thesis will employ both quantitative and qualitative corpus-driven methods to investigate and analyze the linguistic choices made in American reporting regarding energy narratives throughout the ongoing global energy crisis. At the same time, this study will excavate the destructive discourse in the news and further reveal the strategies through which this destructive discourse is presented.

2. Methodology

2.1 Data collection

In terms of data collection, the study encompasses the identification and analysis of three news articles published in *The New York Times* during the global energy crisis as well as the 2019 post-COVID recession that preceded it. As this paper aims to explore the environmental and energy-related discourses in *The New York Times*, the news reports were collected based on how central these topics were in the provided narratives by typing in a set of keywords in the search bars of the websites of the mentioned newspapers. The chosen news was filtered using the keywords (*global*) *energy crisis*, *climate change*, *sustainable energy*, and *fossil fuels*. The calendar years chosen, 2019, 2021, and 2022, were identified as major years for climate change events within the context of the global energy crisis. Finally, this study identified three related news reports with the highest page view as research objects and named them Sampel 1, Sampel 2 and Sample 3, respectively.

In concentrating on the discourses present in the examined newspapers, the study seeks to investigate how the selected articles in *The New York Times* portray the use of fossil fuel-based energy sources throughout the different stages of the evolving energy crisis and excavate the destructive discourse in the news.

2.2 Theory basis

This study utilizes both quantitative and qualitative approaches to ecological discourse analysis. In terms of quantitative measures, the selected news articles are defined and analyzed with the adaptation of the first level of Fairclough's three-dimensional model (1989, 1992), which consists of three interconnected stages of analysis tied to three dimensions of discourse. At the first level, description, the study examines the formal features of the text, specifically Lexical cohesion, Modality and Reported Speech (Fairclough, 1989). Then, based on the above analysis, ecological destructive factors in discourse are identified according to Stibbe's definition of destructive discourse.

In terms of qualitative method, the analysis detailed in this study will refer to a typology of discourses conceptualized by Lamb et al. (2020), climate delay discourses, which are utilized as a tool to disorientate and disincentivize climate action (Lamb et al. 2020). Based on an extensive review of prior research as well as a systematic content analysis of news articles published in the US and Europe, they identified and categorized a set of climate delay discourses, including "Erasure of causality", "Push for non-transformative solutions" "Emphasize the downsides" and "Surrender to climate change"(Lamb et al. 2020). However, this study is more inclined to understand these climate delay discourses as they represent strategies of ecological destructive factors, which is also in line with the nature of climate delay discourses as "tools", so it is reasonable. By doing so, the strategies of these ecological destructive factors in the text can be revealed.

To sum up, the research process of this study is shown in Figure 1.

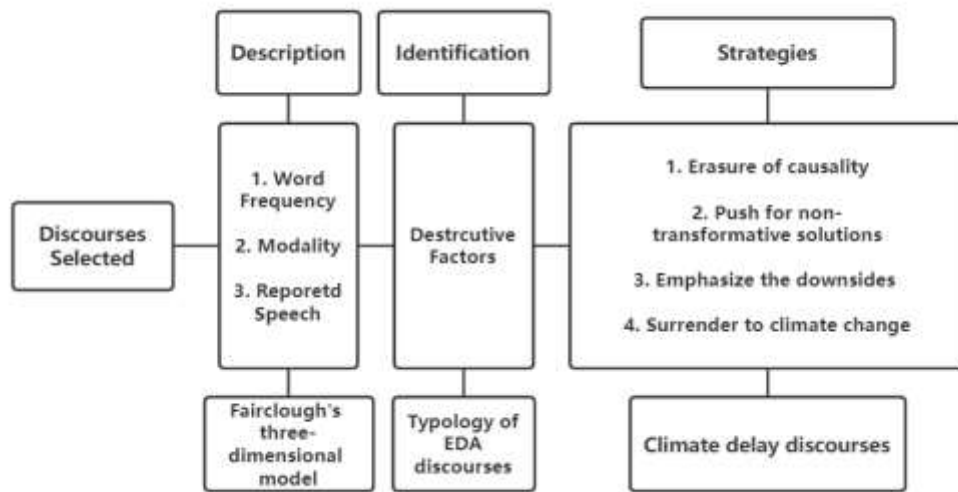


Figure 1: Ecological discourse analysis framework of news discourse

3. Discourses Analysis

3.1 Word Frequency

The description of linguistic features involves lexical classification, as lexical choice can be a common presentational feature used to construct social reality in news reporting. In this part, the study uses Antconc 3.2.2.1 to carry out word frequency statistical analysis for the selected discourse, and the unnecessary function words are removed in the statistical process. As presented in Table 1, the lexical items utilized by *The New York Times* throughout the different stages of the energy crisis represent varying ideological positions on the issues of climate change, fossil fuels, as well as the role of oil and fuel corporations.

Table 1: Top 10 Content Lexemes in Samples

Sample 1 (839)			Sample 2 (1054)			Sample 3 (878)		
Rank	Keyword	Frequency	Rank	Keyword	Frequency	Rank	Keyword	Frequency
1	oil	24	1	gas	27	1	energy	16
2	companies	19	2	prices	20	2	coal	12
3	energy	17	3	energy	18	3	gas	12
4	debt	13	4	oil	18	4	said	11
5	prices	10	5	global	16	5	Europe	9
6	billion	6	6	coal	15	6	Russia	9
7	bonds	5	7	natural	13	7	climate	8
8	capital	5	8	power	12	8	oil	8
9	buckled	4	9	fossil	10	9	war	5
10	blow	3	10	said	5	10	winter	2

Samples 1 and 2 from the earliest stages of the energy crisis have numerous similarities in which words appear to have high lexical frequency. Therefore, in order to determine the statistical significance of word frequencies between the various samples, the data sets will be examined with the log-likelihood test, which compares the frequency of a specific word between two corpora with regard to the total number of words in each text (Paquot & Bestgen, 2009). The data show that between Samples 1.1 and 1.2, the log likelihood (LL) value for *oil* is 5.44 ($p < 0.05$), meaning that the first article centers its environmental discourses more heavily on oil relative to the second article. Meanwhile, although lexemes related to the commodification of energy—*prices*, *companies*, and *bonds* appear in both samples, we can see clearly in Table 1 that Sample 1 holds a highly anthropocentric tone, as it describes the effects of the energy crisis by portraying American oil companies as being on the brink of financial collapse. Additionally, the article shapes a victimized image of the American oil and gas industry by stating that the energy sector has *buckled* and that the crisis has been a *body blow* to the industry. And if we look further, we can find that the most common keyword phrases repeated in the sample are *oil prices*(8), *energy companies* (6), *junk bonds* (4) and *oil companies* (3), which are all related to finance and economy

or energy. Similarly, in Sample 2, the most frequently appearing phrases are *natural gas*(10), *gas prices* (6), *fossil fuels*(6), and *oil prices*(5), echoing the anthropocentric tone of the first sample.

As lexical classification can be used as a linguistic indicator of the ideological stances embedded in news discourse (Chen, 2016), the overall conclusion is that both of the samples demonstrate a predominantly corporate- and fossil fuel-centric perspective. Viewed through an ecolinguistic lens, the minimal frequency by which the samples discuss climate change with terms relating to nature reflects harmful discourses of ecological degradation. And, as the sample shows, energy companies are cast as victims, thereby diminishing their contribution to the energy crisis. Therefore, they are destructive discourse and are adopting the strategy of “Erasure of causality”.

Sample 1.3 was published during the escalation phase of the crisis, which coincides with the 2022 Russian invasion of Ukraine. In attributing the inflated costs of various energy sources to the “Russia Crisis”, the article effectively frames Russia and its current president, Vladimir Putin, as the primary causes of the ongoing crisis. In doing so, the linguistic framing promotes discourses of climate delay by redirecting responsibility to a singular antagonist, in other words, erasing the causality.

In addition, it can be found by observing the co-occurrence words of keywords in Sample 3 that Sample 3 simultaneously acknowledges the harmfulness of specific fossil fuels by employing descriptors such as “dirty” while also establishing fossil fuels, namely gas and oil, as the best sources of energy with no better alternatives (Example 1).

Example 1: Europe’s transition to sustainable energy has always been an intricate calculus, requiring it to back away from the dirtiest fossil fuel like coal while still working with gas and oil producers to power homes, cars and factories until better alternatives are available.

In this example, the strategy of “Push for non-transformative solutions” is adopted. Throughout, economic solutions were prioritized despite the sample making note of the environmental impacts of nonrenewable energy sources.

3.2 Modality

Modality in the selected editorials was expressed through varying linguistic forms, including modal adverbs, modal auxiliary verbs, and evaluative adverbs.

All of the samples frequently utilize some of the modal auxiliary verbs, which include “shall”, “should”, “can”, “could”, “will”, and so on, as stance markers. For example, the predictive modal “will” is used across the samples to make statements and predictions that go beyond the reporter’s knowledge, for instance, suppositions about the extent of the economic damage caused by the lessened use of non-renewable energy sources. In order to understand the overall situation of the sample, this study conducted frequency statistics on the use of auxiliary modals in the sample and calculated their proportion respectively (Table 2).

Table 2: Modality Through Modal Auxiliaries in the Samples

Prediction : will, would, shall		Possibility: can, could, may, might		Necessity: must, should	
N	%	N	%	N	%
26	47.3	25	45.5	4	7.3

Based on the information provided in Table 4, the editorials were more inclined to use possibility and prediction modals, signaling that reporters were predominately concerned with making predictions and implying possible outcomes as opposed to inciting feelings of obligation in readers by using necessity modals. The statistical frequency of necessity and obligation modals is negligible. In order to further explore the specific use of modal auxiliary verbs in the samples, this study will be combined with specific examples for analysis.

Example 2: The job losses that follow *will* likely be significant, worsening what’s expected to be a deep recession in the United States. (Sample 1)

In Sample 1, the reporter uses the “Emphasize the downsides” strategy obliquely while remaining as objective as possible. The writer indicated a degree of evidentiality using the modal adverb “likely” (Example 2). Moreover, the writer expressed their own

evaluation of the severeness of the situation by employing evaluative adverbs such as “heavily” and “sharply”. The use of evaluative adverbs provides very little to no specification for the stances of the authorial voice regarding their proposition or statement, which leaves it open to interpretation and vague as to whether the reporter is aligned or disaligned with the propelled narrative.

Example 3: The renewed emphasis on energy independence and national security **may** encourage policymakers to backslide on efforts to decrease the use of fossil fuels that pump deadly greenhouse gases into the atmosphere.

Example 4: The climate policy “is a suicidal mission” that **could** leave the entire region overly dependent on Russian fuel, Mr. Siekaniec said last week as American troops landed in his country.

Example 5: There’s a broader lesson here, energy experts said. Even as governments and businesses invest in low-carbon energy sources like wind and solar power, the world will remain deeply reliant on fossil fuels for years to come.

The destructive factors in Example 3 and 4 can be manifested in its aim to convince the reader that climate policies that denounce the use of fossil fuels are regressive due to high energy demands that green energy systems would not be able to fill. However, the claim to truthfulness in these discourses is highly mixed, as the use of modals “may” and “could” are markers of low modality statements, thus misleading the readers and making them exaggerate the damage. And in Example 4, the climate policy is described as “a suicidal mission”. By doing this, the news highlights that such implementations are inherently doomed to fail due to the way they would affect politics, society, and overall way of life. Therefore, in these two examples, the strategies of “Emphasize the downsides” and “Surrender to climate change” are used.

In example 5, high modal assumptive verbs such as “will remain” are used to convey that due to current energy demands so as to justify the increasing burning of fossil fuels is not only inevitable but favourable within the context of the crisis. Based on the analysis above, the sample here also uses “Emphasize the downsides” and to construct destructive discourse.

From an ecolinguistic perspective, the discourses surrounding energy usage present in the sampled articles often introduce the discussed issues with low modality, often framing them as tentative assumptions. However, after initial hesitancy in making statements with high modality, as the articles progress, most contentiousness evident in the language use is minimized.

3.3 Reported speech

By utilizing quotes attributed to authority figures and experts, journalists can establish the newsworthiness of the discussed issue and perceivably verify the claims presented in the news piece as facts (Haapanen & Perrin, 2017).

Sample 1 is published in an era in which the COVID-19 pandemic is overwhelming, thus reflecting some of the predominant ecology-related discursive patterns commonly attributed to the COVID-19 pandemic. As in example 6, it emphasizes an anthropocentric approach to the crisis by referring to a direct quotation portraying fossil fuel-based companies as the protagonists whilst framing the virus as the main antagonist with reference to the corporations.

Example 6: “The shale players were already stretched to their limits, and the virus has just broken every thread they were holding on by,” said Ed Hirs, an energy economics lecturer at the University of Houston.

In using devices such as reporting clauses and quotation marks, the article aims to represent this specific discourse as being of considerable social importance. In this example, the writer forgoes attributing the causes of climate change to human actors and focuses on outlining the negative societal and economic impacts of weakened fossil fuel corporations. This makes the coverage of the environmental dimensions of the crisis one dimensional, as there is no explicit mention of nature or the environment. Excluding the environment in widespread discussions about the use of fossil fuels may promote discourses of fossil fuel solutionism and ecological erasure. From an ecolinguistic perspective, such discourses about nature can commonly lead to harmful behaviors and societal shifts in how we frame ecologically destructive actions.

Therefore, it is obvious that the destructive factor here works through “Erasure of causality”. Similarly to Sample 1, Sample 2 favors anthropocentric discourses by advocating for the importance of economic factors over the environmental effects of depending on non-renewable energy sources(Example 7).

Example 7: “Overall, we still expect coal to decline further in the years ahead, but unless there are new policies put in place to clean up the power sector, the coal industry could see a bit of a lifeline if there are big swings in the gas market.”

As direct quotes exert notable influence on audiences, readers are prone to adopting a quoted position as opposed to a paraphrased one (Haapanen & Perrin, 2017). In emphasizing the extent to which the transition to renewable energy sources will disrupt the global economy, the article promotes discourses “favoring non-transformative solutions” as well as valuing energy demands over environmental factors.

3.4 Discussion

One of the aims of this research was to examine how fossil fuel-based energy sources are represented in the samples collected from *The New York Times*. As the analysis shows, the sampled texts are predominately consistent in their framing of climate change-induced energy transition as being insecure and unreliable, which consolidates the idea that the ongoing production and use of fossil fuel-based energy is a central component of the solution to the ongoing energy crisis. Moreover, the data extracted from *The New York Times* often emphasized the negative societal and economic impacts of weakened fossil fuel corporations by focusing on the conceivably harmful effects of alternative energy sources.

In general, the results of this study can be divided into the following two aspects: linguistic features and presentation strategies.

In terms of linguistic features, the samples selected tend to use human-centered words that commercialize energy and show that the editorials primarily promoted profit-focused economic discourses that conceptualized the natural environment as either a non-factor or as a resource for profit-generation. The sampled articles presenting mixed uses of both low modal and high modal statements, with the low modal taking a large proportion. The utilization of utterances with high modality influences the perceived facticity of the articles. The prevalence of modals when discussing the potential downsides of energy transition and when pushing for non-transformative solutions also vivifies discourses of erasure of causality. Sample articles also tend to use direct quotations. Predictions and other quotations from voices presented as experts in their respective fields solidify the perceived reliability and authority of the insecurity surrounding the energy transition, which further consolidates the message that increased production of fossil fuel-based energy is an integral part of the solution to the ongoing energy crisis.

Based on the analysis of linguistic features shown in samples, we identify the destructive factors embedded in the discourses and find that they are climate delay discourses. The strategies of “Erasure of causality”, “Push for non-transformative solutions”, “Emphasize the downsides”, and “Surrender to climate change” are all adopted, with the first being used most.

4. Conclusion

The thesis identifies the principal ways in which conventional energy sources are represented in *The New York Times* throughout the global energy crisis by predominately focusing on word frequency, lexical cohesion as well as modality. In doing so, the analysis further examines the discursive structures of the sampled articles constructed by different linguistic features by comparing them with the discourses identified by Lamb et al. (2020). Notably, the examined discourses are categorized as environmentally destructive and/or ambivalent and linked to the misrepresentation of climate issues in the media. The deconstruction of such discourses may aid in distinguishing between misleading and deceptive environmental communication.

Inevitably, there are some limitations in this study. As the study described in this paper is principally deductive, it is limited to the premises conceptualized by the research conducted by Lamb et al. (2020). As the sampled texts were coded based on pre-established discursive categories, divergent perspectives were overlooked. Moreover, as the scope of the study does not allow for the analysis of a broader and more varied set of data, the statistical analysis of the prevalence of specific words as well as modal forms is not highly extensive.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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