

Ecological Critical Discourse Analysis of Chinese and American Media News Reports on Nuclear Wastewater

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Abstract

In recent years, environmental pollution has been the focus of attention in various countries. Experts and scholars began to study environmental pollution from different fields, and ecological linguistics came into being. Ecocritical discourse analysis (CDA) is an important branch of ecolinguistics, which analyzes the use of language from the perspective of the ecological environment of language. Since the leakage of Fukushima nuclear power plant in Japan, the news of Fukushima nuclear wastewater has aroused wide attention. Based on the three-dimensional analysis framework of Fairclough (2010), this study makes a comparative analysis of Chinese and American nuclear wastewater news reports from the perspective of ecocritical discourse analysis, explores the respective positions and ideological differences between Chinese and American nuclear wastewater reports from the aspects of title, vocabulary selection and theme, and cultivates readers' critical thinking. Finally, it can improve readers' ability of discourse comparison and analysis and their awareness of protecting language ecological environment.

Keywords

Ecological Critical Discourse Analysis; Nuclear Wastewater; Ideology; News Reports.

1. Introduction

Since the leakage of Fukushima nuclear power plant in Japan, the contamination of nuclear wastewater has aroused wide concern. Nuclear wastewater pollution is not only related to the well-being of people in Japan and the surrounding areas, but also threatens the ecological protection of the global Marine environment, so the media of various countries have reported. While paying attention to the pollution of nuclear waste water, the media of various countries also build their own national image through the way of news discourse. Ecologic critical discourse analysis (CDA) is an important branch of ecolinguistics and an indispensable part of ecolinguistics. It combines ecolinguistics and CDA, that is, CDA analyzes the use of language from the perspective of language ecology. It includes but is not limited to the application of CDA to texts related to environment and environmentalism. It aims to reveal the potential ecological or non-ecological linguistic components as well as the power and ideology contained in the discourse (Harre et al., 1999). In recent years, based on the perspective of ecological critical discourse analysis, the study of news discourse has become increasingly hot. Therefore, this study adopts the corpus research paradigm, based on the three-dimensional analysis framework of Fairclough, and adopts the research method combining qualitative and quantitative research. The news reports on nuclear wastewater from *China Daily*, *Xinhua Daily*, *New York Times* and *Washington Post* from March 2011 to September 2023 are selected as the corpus sources. By comparing the similarities and differences in title, vocabulary selection, theme and other aspects, this paper explores the underlying social, cultural and political elements through the integration of multiple disciplines and theories, and then identifies and criticizes the non-ecological factors in the Chinese and American media news reports on nuclear wastewater, and finally explores the ideological construction of the national image

behind them. On this basis, readers' awareness of critical thinking and language ecological environment protection can be improved.

2. Ecolinguistics and Ecocritical Discourse Analysis

In the 1970s, Haugen put forward the concept of "ecolinguistics", which is an interdisciplinary subject formed by the combination of linguistics and ecology, and also a new branch of linguistics. Haugen (1972) stated that ecolinguistics is the study of the interaction between any particular language and its surroundings. In recent years, with the development of economy and technology, population growth and environmental pollution, ecological damage has become increasingly serious. The deterioration of the global ecological environment makes people long for a harmonious and balanced ecological environment. Therefore, experts and scholars in different fields have made efforts to curb the deterioration of the ecological environment through their own disciplinary advantages, and linguists have also combined the knowledge of linguistics with ecology to form ecolinguistics, so as to conduct research on environmental issues. The research scope of ecolinguistics is relatively wide, and two traditional models have been established in the international field of language and ecology research: Haugen (1972) model and Halliday (1990) model. The former is mainly from the perspective of linguistics, focusing on the language ecosystem and diversity, mainly through the investigation and recording of the language ecosystem to save the world's endangered minority languages. Halliday (1990) mainly applied the theoretical system of ecology to linguistics from the perspective of ecology, aiming to explore the impact of human language on ecological environment and society. The two models complement each other and promote each other, which makes the theoretical system of ecolinguistics gradually perfect.

Critical discourse analysis (CDA) is developed from critical linguistics. The concept of critical linguistics originated in the late 1970s, and was first proposed by British linguist Folwer et al in the book *Language and Control* published in 1979. It is based on Halliday's systemic-functional grammar theory, which holds that language can realize three major rational functions: ideational function, interpersonal function and textual function. Discourse analysis from the perspective of ecolinguistics absorbs the ideas of contemporary critical linguistics, that is, it criticizes and analyzes the ecological behavior and ideology of language socialization from the perspective of ecology, that is, ecocritical discourse analysis, which is a very important part of ecolinguistics, including two branches: ecocriticism of the English language system and ecocriticism discourse analysis. The latter, ecocritical discourse analysis, has been widely used in the study of environmental discourse to point out the ecological and non-ecological linguistic components of discourse.

3. Corpus Sources and Research Methods

This paper adopts the corpus research paradigm to conduct ecological critical discourse analysis of Chinese and American media news reports on nuclear wastewater, and finds different discourse strategies adopted by Chinese and American media reports through comparison, revealing the hidden ecological and non-ecological language components behind the Chinese and American media news reports on nuclear wastewater, and further discusses the self-created national image of China and the United States. As for the selection of corpus, this study comprehensively considered the authority, timeliness and effectiveness of the source of corpus, combined with the two key time points of the nuclear leakage incident in Japan on March 12, 2011 and the official announcement of the sewage plan in Japan on August 22, 2013, resulting in the actual situation of more news reports on nuclear wastewater during that period. News reports on nuclear wastewater from *China Daily*, *Xinhua Daily*, *New York Times* and *Washington Post* from March 2011 to September 2023 were selected as the corpus sources.

Based on Fairclough 3D analysis framework and Wordsmith8.0 corpus analysis tool, This paper makes a comparative analysis of the theme, title and vocabulary selection of four media from nuclear wastewater news during the same period. *China Daily* and *Xinhua Daily* are the most influential English-language newspapers in China, and most of their content reflects the Chinese government's position and attitude on major domestic and international events. The *New York Times* and *The Washington Post* are the most influential newspapers in the United States. They are authoritative and representative. Most of their content focuses on global news perspectives and reflects the position and attitude of the United States towards international events. Therefore, this study selected four news reports about nuclear wastewater from the same period of time as the corpus. Based on the perspective of ecological critical discourse analysis, the self-built corpus adopted a qualitative and quantitative research method, and the Wordsmith8.0 corpus analysis tool was used to make a comparative analysis of the theme/title and vocabulary selection of the reports. To find out the ecological and non-ecological linguistic factors in the Chinese and American media reports on nuclear wastewater, identify and criticize the non-ecological factors, and finally explore the self-created national image of China and the United States.

4. Ecological Critical Discourse Analysis of Chinese and American Nuclear Wastewater News Reports

Based on the perspective of ecocritical critical discourse analysis (CDA) and Wordsmith8.0 corpus analysis tool, this study mainly adopts the corpus research paradigm to make a comparative analysis of the headlines, vocabulary choices and themes of Chinese and American media news reports on nuclear wastewater.

4.1. Comparative Analysis of Nuclear Wastewater News Headlines

News title is an indispensable part of news, which is a condensed expression and high generalization of news content. News headlines usually have three characteristics: consistent text, accurate expression and concise semantics. The purpose is to enhance the influence of news, attract readers to mobilize their background knowledge to think in a specific direction, and help them understand the specific content of news. In addition, the title is the core of the news, and the author has gone through a deliberate and careful deliberation process to determine the content of the news title, so the title not only reflects the core of the content, but also contains the author's view and attitude towards a particular event and the ideological issues hidden behind it. Therefore, through a comparative analysis of the content of nuclear wastewater news headlines in Chinese and American media, this study explores the differences in the selection of Chinese and American media headlines and the ideological issues hidden behind the differences from the perspective of ecological critical discourse analysis.

The author first extracted the keyword "nuclear wastewater" from *China Daily* and *Xinhua Daily*, and then extracted the same keyword from the *New York Times* and *Washington Post*. The titles of the excerpts by the author are listed in Table 1. Through comparison, it is found that Chinese and American media adopt different language strategies in news reports about nuclear wastewater. Through Wordsmith search, it was found that in the nuclear wastewater news headlines of *China Daily* and *Xinhua Daily*, the adjectives paired with the theme word "water or wastewater" mostly used evaluative adjectives and were mostly derogatory words, among which "toxic" appeared the most frequently, appearing for a total of 5 times. However, the *New York Times* and *Washington Post* mostly used narrative adjectives and mostly neutral words, such as "nuclear", "radioactive" and "treated", among which "radioactive" appeared most frequently, appearing 4 times in total. The choice of theme collocation words in the title reflects the different attitudes and views of Chinese and American media towards nuclear wastewater. Chinese media often use derogatory terms such as "toxic" and regard nuclear wastewater as

harmful or toxic to human body and the ecological environment, which shows that China opposes the practice of nuclear wastewater discharge and damages the ecological environment. However, the US media mostly used neutral words, such as "radioactive" and "treated", and admitted that the nuclear wastewater is "radioactive and treated" water, which is a non-emotional objective evaluation, reflecting that the US has a neutral attitude toward Japan's sewage treatment and does not care about whether the nuclear wastewater causes damage to the ecological environment.

In addition, through the comparison of headlines, the author finds that the theme of the headlines in China Daily and Xinhua Daily is mostly from a global perspective, and the words "world" or "global environment" appear more frequently. In addition, the words "risks to world", "at stake", "a crime against nature", "puts world in peril" and "eco-crime" indicate that China believes that Japan's pollution is a threat to the whole world. Is the harm to the global ecological environment; However, in the New York Times and the Washington Post, the topic of the headlines is mostly from a political perspective, surrounding the Nuclear Wastewater discharge itself. For example, the title "Nuclear Wastewater Is Misunderstood" believes that the nuclear wastewater discharge is misunderstood. In addition, the US media also focused on the issue of relations between Japan and its neighbors, such as the headline "radioactive water is complicating Japan and Korea's new friendship". Japan's Plan for Fukushima Wastewater Meets a Wall of Mistrust in Asia. Japan's Plan for Fukushima wastewater meets a wall of mistrust in Asia. From the different language strategies used by Chinese and American media headlines, it can be seen that China, from a global perspective, cares about the safety of people all over the world and the global ecological environment, reflecting the concept of "community of human destiny" and "community of human and natural life" advocated by China. However, the US media only pay attention to the incident itself and whether it will have an impact on the political relations of neighboring countries, reflecting that the US only considers the incident a political issue from its own interests, and only pays attention to the political relations between countries on the same side as its own, and does not pay attention to the ecological and environmental problems caused by the discharge of nuclear wastewater.

Table 1. Chinese and American Nuclear Wastewater News Reports in the Title of the Corpus

China Daily and Xinhua Daily	New York Times and Washington Post
Japan Passing Its Nuclear Risks To World: China Daily Editorial	Japan to Release Treated Water From ruined nuclear plant despite concerns
Japan's toxic water discharge plan based on lies	Plan for dumping nuclear wastewater into hudson river is paused
Lawsuit shows Japanese oppose toxic water dumping	Radioactive water is complicating Japan and Korea's new friendship
Japan's nuke wastewater discharge puts global environmental morality at stake, says expert	Last reactor at Zaporizhzhina nuclear plant shuts down after dam collapse
Dumping Fukushima water into ocean is a crime against nature	Just like that, tons of radioactive waste is heading for the ocean
Japan's release of water puts world in peril	Scientists say Fukushima water is safe, but radiation fears persist
The West's silence on Tokyo's eco-crime is truly deafening	Nuclear Wastewater Is Misunderstood
Readers: Time for Japan to change course on toxic dumping	Treated Wastewater for Thirsty Power Plants
Japan's toxic water dump not at all welcome	Struggling to Contain Radioactive Wastewater
Fukushima dumping plan toxic as ever	Japan's Plan for Fukushima Wastewater Meets a Wall of Mistrust in Asia

4.2. Comparative Analysis of Nuclear Wastewater News Vocabulary Selection

Geis (1987) indicates that the more commonly used words in English can be divided into positive and negative words according to their emotional color. By comparing the Chinese and American media's choice of news reports on nuclear wastewater, the author finds that the two media have different attitudes and positions on this incident. The corpus in Table 2 is excerpted from the descriptions of the United Nations Convention on the Law of the Sea and other relevant international laws in the Chinese and American media Nuclear Wastewater News. As can be seen from the table, China Daily and Xinhua Daily mostly use negative terms on whether Japan's pollution is illegal. Such terms as "fail", "disregard", "violation", "damaging" and "hypocrisy" reflect China's opposition to nuclear waste water discharge. As a signatory to the United Nations Convention on the Law of the Sea, Japan has not fulfilled its obligations as a signatory and has exposed "hypocrisy" in environmental protection. In terms of wastewater treatment measures, more positive words such as "present" and "stop" are used to show that China actively supports the Convention on the Law of the Sea and a series of international law treaties, is committed to maintaining global ecological environmental protection, and resolutely resists all acts that damage the global ecological environment, which has self-created the image of China as a major country in charge. On the other hand, the New York Times and the Washington Post are more positive about this approach, thinking it is reasonable and thoughtful.

In addition, it can be seen from the comparison of the corpus that the Chinese media has given reasonable and substantive suggestions on the discharge of nuclear wastewater, suggesting that it should be submitted to the United Nations and the military court for opinions. Moreover, China has implemented a series of measures to stop the discharge of nuclear wastewater, such as banning the import of Japanese aquatic products, which shows that China's strict and popular style of dealing with the issue will protect the ecological environment. Resolutely safeguard the interests of the people, self-shaping the responsible country image. However, the United States did not give substantive opinions and suggestions on this incident, which reflects the negative attitude of the United States towards nuclear wastewater discharge and treatment. To sum up, in dealing with the issue of nuclear wastewater discharge, China has actively cooperated with other countries and taken concrete actions to strengthen cooperation in jointly addressing the issue of ecological protection. On the other hand, the United States takes a negative attitude towards the issue in the news reports on nuclear wastewater discharge, unwilling to deal with it directly, let alone take practical actions to solve the problem.

4.3. Comparative Analysis of the Theme of Nuclear Wastewater News Reports

By comparing the choice of subject materials of these four media, the author finds that in order to convey the ideological information of the two countries to readers, Chinese and American media use different language strategies. The two media mostly use declarative sentences and rarely use prepositions and prepositional phrases in their news reports on nuclear wastewater, which reflects that the media of the two countries actively convey objective and formal information to readers.

In addition, by comparing the geographical names, personal names and organizations in the news reports on nuclear wastewater in China and the United States, as shown in Table 3, the author draws the following conclusions: First, compared with Western media, Chinese media are more likely to focus on authoritative topics, such as the national government, the spokesperson of the Ministry of Foreign Affairs, and the people concerned about the harm of nuclear wastewater discharge to the ecological environment and the rights and interests of the people, while Western media are more likely to focus on the political relations between Japan and neighboring countries caused by nuclear wastewater discharge within the government and various political parties. Second, Chinese media reports on nuclear wastewater only involve

Japan and the United States, while the American media will involve many countries in Asia, such as Japan and South Korea. Third, the American media's news about nuclear waste water often shows a disagreement between the government, parties and the masses, while our media does not have such a situation. Fourth, the Chinese media mostly called on other countries and people to pay more attention to the protection of the ecological environment following the discharge of nuclear wastewater, while the US media mostly focused on the political relations between countries triggered by the discharge of nuclear wastewater.

Table 2. Lexical Corpus Selection in Chinese and American Nuclear Wastewater News Reports

China Daily and Xinhua Daily	New York Times and Washington Post
Despite being a signatory to the UNCLOS, Japan has failed to fulfill these obligations. The case therefore is fit to be presented to the UN General Assembly and the UN Security Council, and referred to the UNLCOS, under Annex VII, for an advisory opinion.	The Chinese government, which has strongly opposed the plan, warned on Tuesday that it would take "all necessary measures" to safeguard the marine environment, food safety and public health. A large segment of the South Korean public also objects to the discharge, as do fishing groups and others in Japan.
Disregarding the opposition of its neighboring countries and the international community, Japan has completed the first round of radioactive water discharge in violation of all international laws. The United States-led West claims to be the global leader in environmental protection, yet it has not said a word against Japan's marine-ecosystem damaging action, exposing its hypocrisy on environmental protection. The leader of the Republic of Korea opposition party has been hunger striking for 21 days, while China has stopped imports of Japanese aquatic products.	Both Tepco and Japan's fisheries agency have said they will monitor the ocean water for radioactive levels, and the IAEA has said it will also oversee the process, which is expected to last decades.

Table 3. Comparative analysis of nuclear wastewater news reports

	China Daily and Xinhua Daily	New York Times and Washington Post
Country, Region, Government	The USA, China, etc.	The white house, China, Japan, Korea, etc.
Crowd	Chinese government, etc.	White house officials, etc.
Institutions and Organizations	The UNCLOS, The UN, etc.	The UNCLOS, NHK, etc.
Factors	Japan	Japan
Influences	Eco-crime, etc.	Environment pollution, etc.
Efforts	Be presented to the UN General Assembly and the UN Security Council, etc.	The essence of dealing with nuclear wastewater, etc.

5. Conclusion

This study conducts ecocritical discourse analysis on the relevant corpus of Chinese and American media news reports on nuclear wastewater discharge, and makes a comparative analysis of the nuclear wastewater news headlines, vocabulary choices and themes from the perspective of ecolinguistics, so as to explore the similarities and differences between Chinese and American media's attitudes towards Japan's discharge and the self-created national images behind it.

It is found that Chinese media objectively express their views and attitudes on the event in the headlines of news reports, mostly focusing on the theme of global ecological environment and

paying attention to global ecological issues; In terms of the vocabulary choice of the text, negative words are mostly used for Japan's pollution practice, indicating that they are opposed to this practice. In terms of governance measures and ecological environment protection, positive words are mostly used to establish the image of a responsible country for readers. In the selection of topics, they tend to prefer authoritative organizations and personnel, such as the spokesperson of the Ministry of Foreign Affairs and the national government. In contrast, the headlines of news reports in the United States are mostly based on their own interests and pay more attention to the political relations caused by Japan's pollution. The vocabulary of the text mostly uses negative words, acquiesces in Japan's pollution, and is indifferent to ecological protection; In the selection of the theme, more from the government, the stakeholders of various parties. Based on the perspective of ecocritical discourse analysis, this paper makes an in-depth analysis of Chinese and American media news reports on nuclear wastewater, but there are still many shortcomings, so this study needs to be further improved.

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