A Critical Discourse Analysis of Selected Political Speech on Online Education[1]

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ABSTRACT

Critical Discourse Analysis (CDA) is a method that is very context-sensitive, democratic, and takes an ethical perspective on social problems to change society. CDA examines the connections between language and the social and political settings in which it is utilized. This study aims to examine the true objective and purpose of political speeches on online education. It investigates political discourse about online education. A CDA of political speech from online education is used in the present study, which is text qualitative research. Understanding and analyzing this communication was made easier by using this approach. We compile a dataset that includes academic settings, and the dataset is preprocessing using stop word removal, stemming, and dimensionality reduction, and then conduct statistical analysis using ANOVA. The findings may be useful for researchers doing more CDA research. The suggested system's effectiveness is assessed using accuracy and computation times are compared with conventional methodologies to prove the efficiency of the system.

Keywords: Critical discourse analysis (CDA); political speech; online education; ANOVA

INTRODUCTION

Education should either focus on students' cognitive progress or their emotional well-being, according to a long-running argument over the last several decades. The cognitive and emotional aspects of educational practice, however, are difficult to separate. When teachers and students mix knowledge from multiple areas and experiences, they may revolutionize education. Teachers may give these chances by encouraging students to develop analytical, imaginative, critical synthesis, creative, self-aware, and intentional abilities. Politics is a power struggle that aims to execute certain educational, political, economic, and social ideologies. Language is essential to this process since it is used to prepare, accompany, influence, and play every political speech action. It is also important for education (1). The early social and cognitive developments, as well as the creation of identities, are all tightly correlated with language. In sociolinguistics, how a listener may approach the speech of another speaker has been a key problem. One of the most important areas of research in the social psychology of language is the study of language attitudes. Although social psychology has dominated most of the research on language attitudes, sociolinguistics has always had "overlapping interests and involvements" (2). Using figure 1, the three-stage approach and analysis would proceed as follows: In the description step, major significant aspects in each of the three Meta functions will be carefully analyzed within the context of Systemic-functional Grammar. During the interpretation step, explanations of the data and a framework for further analysis are provided. During the explanation stage, the current financial discourse will be examined in light of its institutional and socio-historical background. The ultimate goal is to expose the ideological underpinnings of the specific financial comments for further examination (3).
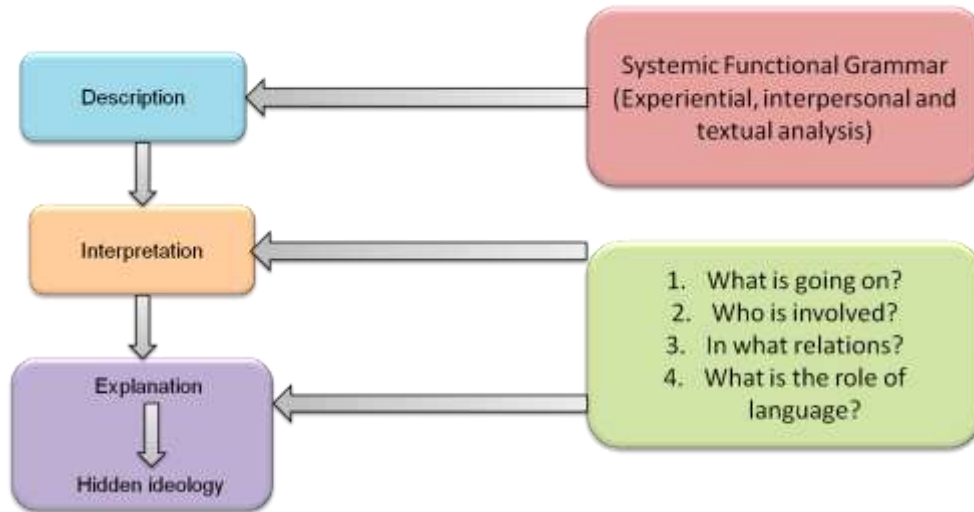

Figure 1: The CDA theoretical framework

Critical discourse analysis is very important in both written and spoken forms. This study's primary goals are to analyze political speech in online education. The term "critical discourse analysis" refers to how language functions and how meanings are generated in various social contexts and circumstances. It may be used in spoken, nonverbal, written, and other forms of communication, such as tone and gestures. Correct message comprehension is the goal of CDA. It differs from other strategies, such as those that exclusively concentrate on language usage. It focuses on social factors and the techniques individuals use to accomplish certain results, such as fostering trust, sowing seeds of doubt, arousing emotions, and reducing tension. Critical Discourse Analysis is another name for critical linguistics. Discourse analysis looks at how speakers perceive communication in its context. An approach is called Critical Discourse Analysis (CDA). By using this technique, we can comprehend how individuals receive or perceive the message in its whole social and literary context. Instead of concentrating on tiny bits of language or communication, discourse analysis focuses on the bigger contents. The text is examined using Critical Discourse Analysis at all levels, no matter how tiny or large (4). For the goal of this project, political speeches on online education will be analyzed to determine their genuine objectives and purposes. There is a lot of discussion in the political arena concerning online schooling. Text qualitative research uses a corpus-based corpus of political discourse from an online university to compile a CDA. This method makes it easy to understand and analyze this message.

Contribution of the Study

➢ We put up a dataset that consists of academic speech.
➢ Preprocessing includes getting rid of stop words, stemming the words, and reducing the dimensionality.
➢ Statistical analysis is carried out using ANOVA.

The remaining work is divided into the following sections: section 2, which includes the related works and problem statement; section 3, which includes the proposed methodology; section 4, which includes the result and discussion; and part 5, which includes the conclusion.

RELATED WORKS

Discourse primarily deals with spoken and written communication, while it may be used in a variety of ways and under different conditions. A language unit longer than a single phrase is referred to as a discourse in linguistics. They may more clearly comprehend the intents and meanings of speakers and any content by using CDA. This essay makes use of some research from a Critical Discourse Analysis (CDA) of thirteen digital teaching and learning initiatives

published by UK departments and non-departmental public organizations between 2003 and 2013 (5). In this research, they explore if and how instructors in this setting formed a critical discourse. The group evolved a more collaborative, interpretative, and fact-based language on teaching and learning, according to the analysis. These results show how instructors changed to adopt a more critical viewpoint while debating teaching and learning and add to research on video clubs as a professional development strategy to improve teacher learning (6). CDA uses diverse methodologies based on research aims and theoretical viewpoints. This methodological guide outlines a generic CDA analytic framework and exhibits its application to an education-focused literature evaluation. CDA research is no less susceptible than other academic research to perpetuate ideological assumptions; rigor and trustworthiness are explored (7). This research attempted to detect discursive devices in news headlines, unravel media practitioners' ideologies, and disclose insights from the findings. This study examines the remarks made by the Prime Minister and President of Israel during the Gaza War (Netanyahu and Abbas). The contrast between "self" and "other" was based on Van Dijk's ideological square and Halliday's framework in this study. Results from this research show that these two beliefs are at odds with one other. Rather than portraying the "other" as a "dire menace" or "agent of devastation," both speakers portray themselves as "strong" humans and "honorable." Additionally, Halliday's Systemic Functional Grammar was used through transitivity. The findings also showed that Abbas' discourse had a stronger emphasis on material processes (8). The Fairclough CDA model is described in full in this publication. Among the topics covered were the major programmatic aspects and research fields, ideology, inequality, and power. In this work, CDA's primary goal is to examine the dynamics of power, dominance, and control via language. The three-dimensional model is also explored in great depth. – Description, interpretation, and explanation are all aspects of this model's initial facets (9). An example of using critical discourse analysis in a political setting is provided in this article. Such an in-depth look at the theoretical foundations, key methodologies, and common beliefs of critical discourse analysis may be found in this book. A case study of right-wing populist rhetoric in Australia was used to demonstrate how critical discourse analysis might be used in political communication research. With this book, political communication academics were given an outline of CDA's main theories, as well as its importance to the discipline (10). Discourses concealed in the language used to preserve power and perpetuate current social connections are the goal of the project. CDA, on the other hand, has several difficulties and possibilities as a result of the rise of the internet and social media. Text and ideology, as well as the author-reader dynamic, seem to be shifting (11). Michael Wolff's book "Fire and Fury: Inside the Trump White House" served as the basis for this investigation. The current study uses a qualitative technique and a variety of excerpts from the book for examination. According to the findings, the book portrays Trump as an unqualified and unsuitable candidate for the office of president of the United States (12).

Problem Statement

Criticism of critical discourse analysis is axiomatically based on the fact that it is qualitative and political. As a result, every critique of qualitative research must involve an examination of the study's critical discourse. According to CDA, a political interventionist approach is undoubtedly anathema to a positivist or social science researcher who emphasizes objective above subjective judgments. Criticisms of CDA's claims of objectivity, validity, and dependability in a quantitative research would be countered by critical discourse analyzers. Critical discourse analysts also do research "without feeling the need to apologize for the critical tone of their work. CDA's methodological rigor, sample size, and sample selection are regularly criticized.

PROPOSED METHODOLOGY

This study, which is text qualitative research, uses a CDA of political speech from online education. Using this method made it easier to understand and analyze this communication. We put together a dataset that includes academic settings. We preprocess the dataset with stop word removal, stemming, and dimensionality reduction, and then we use ANOVA to do statistical analysis. Figure 2 indicates the overall methodology of this research.
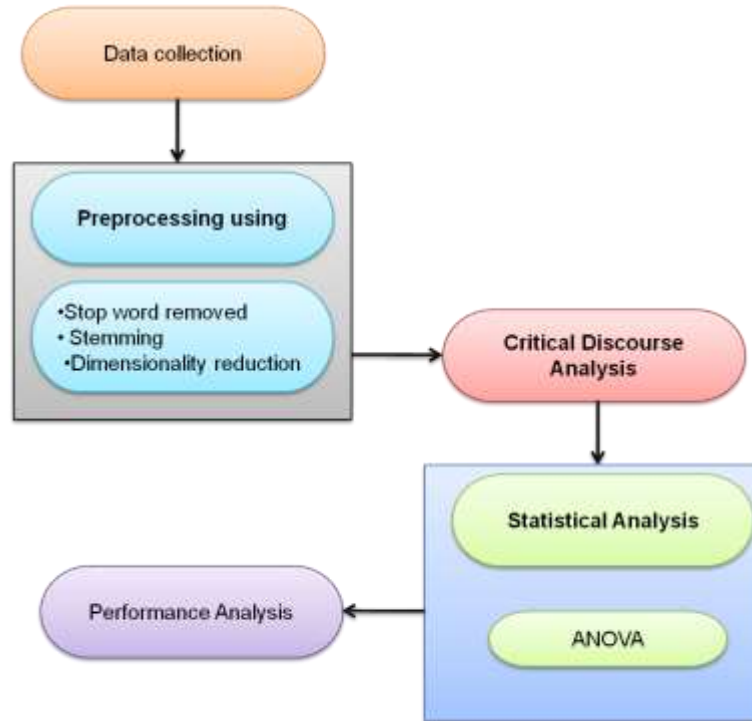
Figure 2: Overall Methodology of this Research

Data Collection

The monologic discourse segments retrieved and separated from the chosen political speeches are operationally treated as examples of the use of language for dominance. Each representing a given speech, we compile a dataset that includes academic speech (13).

Data Preprocessing

Data preprocessing prepare raw data for another data processing procedure. Using stop word removal, stemming, and dimensionality reduction for preprocessing.

> **Stop word removal**

One of the data preprocessing that is often used in several Natural language processing is the removal of punctuation marks. The idea is to simply eliminate words that are used frequently across the corpus's many publications. Publications and pronouns are two examples of the grammatical structure that often makeup stop words.

> **Stemming**

A significant portion of natural language machine learning focuses on analyzing the tone of the text. The process of reducing a word to its base form, known as "stemming," involves eliminating inflection from the term by omitting extraneous letters, most often a suffix. There are a few different models for stemming, such as the Porter and Snowball methods. The findings may be used in the process of locating correlations and similarities present across several datasets.

    ➢   **Dimensionality Reduction**

The practice of lowering the number of characteristics in a dataset while retaining as much of the original dataset's variance as feasible is referred to as dimensionality reduction. Dimensionality reduction is a simple term for this procedure. As a phase in the process of preparing the data, dimensionality reduction is one of the tasks that must be completed before the model can be trained.

Critical Discourse Analysis

Critical discourse analysis starts with the notion that language and social inequalities between speakers, readers, and writers may be related to their uneven access to power and resources. It is on this basis that institutions like schools are presupposed in critical discourse analysis as gatekeepers for the mastery of discursive resources such as ordinary oral and written language. Asymmetrical power relations and specific depictions of social and biological worlds may be made to look 'natural' and commonsensical using these techniques. Criticism is both destructive and constructive, and that's why it's called "critical discourse analysis." While in a deconstructive mode, it seeks to challenge and destabilize commonplace discourses and practices. Students' abilities to analyze and criticize discourse and social interactions have been enhanced, and the allocation of discourse resources is more equal, as a result of its use in critical literacy curriculum development during online education.

Figure 3: Critical discourse analysis using a comprehensive approach

CDA made achievements in applied linguistics and critical social theory. It progressively merged with non-language-oriented study fields, which helped make it interdisciplinary. CDA's intersection with other disciplines is getting complex, therefore its scope and bounds are unclear. This institution's borders are difficult to define since it draws substantially from other disciplines of research and scholarship, such as cognitive sciences are indicated in figure 3. Text is critical discourse analysis' primary unit of analysis. Texts are seen as social acts, as well as relevant and cogent examples of language usage in speech and writing. Despite this, their shape and form are neither arbitrary nor random. Certain text forms or "genres" have established societal roles that they perform. To put it another way, a certain kind of text may be used to 'do things in a certain way in a certain social context. In the context of social behaviors that are historically and culturally distinctive, genres are ever-evolving and susceptible to new forms of expression and interpretation. But they remain tied to conventionalized discourses in general. There are two ways in which customary forms like genre and sub-

genre may confine or facilitate social connections between speakers, listeners, or readers. Analyzing discourse means looking at the text from the perspective of the (productive and interpretive) discursive processes, and then explaining how those processes interact with the text in connection to social processes. Studying how language functions in different circumstances is an important aspect of discourse analysis. In other words, discourse analysis focuses not only on the structure of language but also on the context of the text. The method is known as Critical Discourse Analysis (CDA) and is used in a variety of areas. However, politics is recognized as the most significant social sector in which critical discourse analysis performs its beneficial function. This kind of study is also known as political-critical discourse analysis since it examines both political and critical discourse. Political-critical discourse analysis examines how political speech reproduces political domination, abuse, or misuse of power as well as the many types of counter power that exist against such forms of discursive supremacy, (Ibtihal and Farhan, 2018)

Statistical Analysis

ANOVA

Analysis of variance, or ANOVA, is a quantitative tool for dividing reported variability data into multiple parts for use in subsequent tests. A one-way ANOVA has been used to discover the relationship here between variables when there are 3 or more data sets. The parameters are calculated using the least-squares approach, with all variances being identical. This may be expressed as:

$$G = NT_{between}/NT_{error} \tag{1}$$

Where

$$NT_{between} = \frac{\sum_{j=1}^{h} o_j(\bar{Y}_j - \bar{Y})^2}{h-1} \tag{2}$$

and

$$NT_{error} = \frac{\sum_{j=1}^{h} \sum_{k=1}^{o_j}(Y_{jk} - \bar{Y}_j)^2}{O-h} \tag{3}$$

The Welch-test-statistic is defined as

$$X = \frac{\sum_{j=1}^{h} x_i [(\bar{Y}_j - \bar{Y})^2/(h-1)]}{1 + \frac{2(h-2)}{h^2-1} \sum_{j=1}^{h} [(1-x_i/v)^2/(o_j-1)]} \tag{4}$$

Where $X_i = \frac{n}{t_1^2}$, u$= \sum_{j=1}^{h} X_j$ and $\dot{Y} = \frac{1}{u} \sum_{j=1}^{h} X_j Y_j$ is defined as:

$$g = \frac{h^2-1}{3 \sum_{j=1}^{h} [(1-x_i/v)^2/(o_j-1)]} \tag{5}$$

The Brown-Forsythe-test-statistic is defined as:

$$G^* = \frac{\sum_{j=1}^{h} o_j(\bar{Y}_j - \bar{Y})^2}{\sum_{j=1}^{h} (1-o_j/O)T_j^2} \tag{6}$$

When L_o is factual the allocation of G* is appropriate by a central G distribution with degrees of freedom h - 1 and g, where g is defined as

$$1/g = \sum_{j=1}^{h} d_j^2 / (o_j - 1), d_j = \frac{(1-o_j/O)T_j^2}{\sum_{j=1}^{h}(1-o_j/O)T_j^2} \tag{7}$$

To calculate the generalized p-value, the generalized p-value is now computed as p = 1 - r, where r is the sample size.

$$r = F\left(I_{h-1,O-h}\left(\frac{O-h}{h-1}\tilde{t}_c\left(\frac{o_1 t_1^2}{C_1 C_2,\dots,C_{h-1}},\frac{o_2 t_2^2}{C_1 C_2,\dots,C_{h-1}},\frac{o_3 t_3^2}{(1-C_2)C_3,\dots,C_{h-1}},\dots\frac{o_1 t_h^2}{(1-C_{h-1})}\right)\right)\right) \tag{8}$$

The prediction is calculated with regard to separate Beta stochastic process in an F-distribution having h - I,V - h dof.

$$C_k \sim Beta\left(\sum_{j=1}^{k}\frac{(o_j-1)}{2},\frac{o_{k+1}-1}{2}\right), k = 1,2,\dots,h-1 \tag{9}$$

The p-value is calculated by numerically integrating the anticipated value in the p-value formula with regard to the Beta random variables.

RESULT AND DISCUSSION

A CDA of political speech from online education is used in the present study, which is text qualitative research. Understanding and analyzing this communication was made easier by using this approach. The parameters such as accuracy and computation time the exiting methods such as Syntactic analysis (14), Transitivity analysis (15), and Semantic Analysis (16). The characterization of DIDS is moderate, about average, high, very high, and outstanding. Figure 4 depicts the frequency distribution of Dominance-Infused Discourse Segments (DIDS). Table 1 indicates the Political Speeches with DIDS.
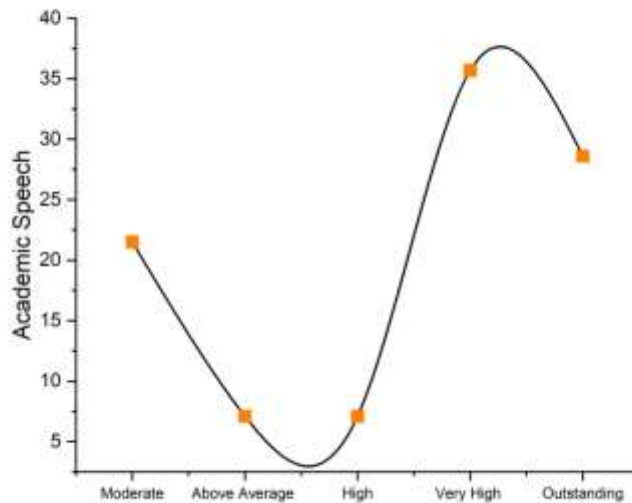

Figure 4: Frequency distribution of DIDS

Table 1: Political Speeches with DIDS

Characterization (DIDS level)	DIDS Qualifying points	Value (%)
Moderate	60	21.5
About average	70	7.1
High	80	7.1
Very high	90	35.7
Outstanding	100	28.6

Six categories of illocutionary behaviors, including (a) assertive, (b) compliant, (c) vindictive, (d) directive, (e) declarative, and (f) expressive, were found to be usually present in political speeches are depicted in table 2 lists these categories. This suggests that the broad employment of all sorts of illocutionary actions is a characteristic of the dominating construction of political discourse. This result also demonstrates that, at least insofar as political speeches are concerned in online education, all sorts of illocutionary behaviors may be used for dominance formation.

Table 2: Features Overview of Political Speech Acts

No	Specific description	Rate
1.	Assertive (Claiming)	15%
2.	Assertive (Reporting)	NULL
3.	Commissive (Promising)	20%
4.	Commissive (Threatening)	5%
5.	Verdictive (Assessing)	50%
6.	Directive (Requesting / Begging)	10%
7.	Directive (Ordering)	NULL
8.	Declarative (Declaring a war)	NULL
9.	Expressive (Welcoming / Inviting)	NULL
	TOTAL No. of Classes of Illocutionary Acts Manifested	4

Accuracy is a factor to consider while reviewing online education studies. Accuracy is described using the term "degree to which the result of a measurement corresponds with the proper value or a standard." Accuracy is the proportion of forecasts that our method successfully predicted. Every method that requires data pre-processing must undergo an accuracy assessment. Our method's accuracy is contrasted with that of other methods. The conventional model and the suggested model accuracy are shown in Figure 5. The suggested method for evaluating education research is quite precise. The Syntactic analysis received a score of 65%, the transitivity analysis received a score of 76%, the semantic analysis received a score of 84%, and the suggested approach received a score of 96%. Researchers and professionals utilize computation time as a crucial performance metric to assess the efficiency of an analysis in terms of execution time. Comparing our proposed technique to the existing ones, the computation time is shorter. Figure 6 displays the calculation times for the proposed and existing methodologies.
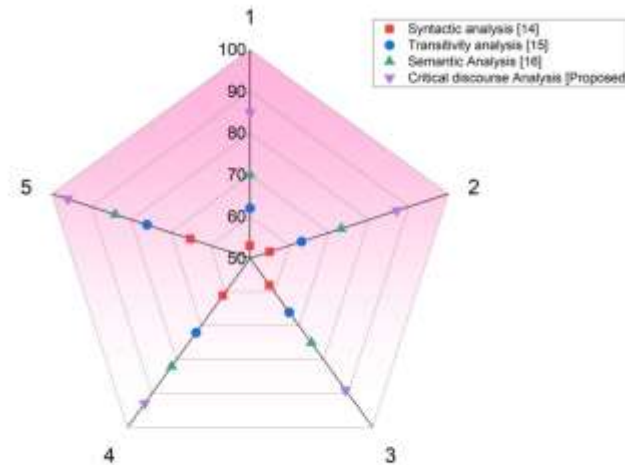
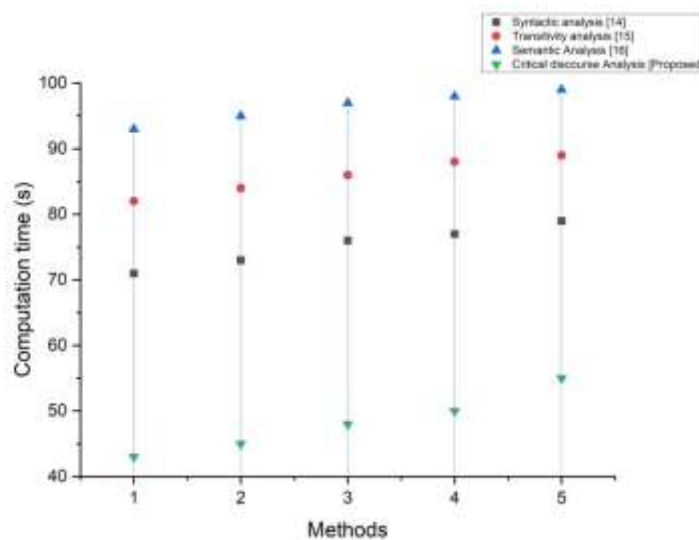**Figure 5: Accuracy for proposed and existing methods**

Figure 6: Computation time for proposed and existing methods

Using Syntactic analysis (existing) the speaker was unable to explain their intentions, plans, sentiments, and expectations since the employment of syntactic techniques made the speech not acceptable (14). When an analysis is used to get a larger degree of interpretation, the transitivity analysis (existing), in particular, has increased inaccuracy because of the nature of the analysis (15). Semantic analysis (existing) due to the tremendous complexity and subjectivity inherent in human language, the interpretation of it by robots is an extremely difficult undertaking. The meaning of a particular text may be determined by using a technique known as semantic analysis of natural language, which takes into consideration the surrounding context as well as the logical structure of sentences and the functions of grammar (16). To find solutions to issues like these, we presented approaches that were both more accurate (96%) and required less time (55s) to compute.

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CONCLUSION

The research makes suggestions for language and literature instruction, notably the inclusion of "power relations" as a component of literary criticism or in programs that political speech actions and rhetorical techniques in CDA. Political speech actions and discourse can be used in the actual language used to promote dominance constructions or to identify dominance construction from speakers, in addition to its balanced purposes. We offered methods that were quicker to calculate while also being more accurate. The proposed method attained the high accuracy (96%) and lower computation time (55s). It is possible that in the future researchers will investigate the effectiveness or even the advantages of strengthening the cooperative relationship between speech act features and discourse characteristics in political speeches to decide whether or not their collaborative approach generates positive effects on dominance renovation. This is due to the overall results of the extremely low to moderate amount of linkage, the use of CDA techniques, and the various types of illocutionary acts.

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