A Computer-Aided Text Analysis to Explore Recruitment and Intellectual Polarization Strategies in ISIS Media

Ayman Farid Khafaga[1&2]

a.khafaga@psau.edu.sa

[1]College of Science and Humanities, Prince Sattam bin Abdulaziz University, Saudi Arabia
[2]Faculty of Arts & Humanities, Suez Canal University, Egypt

Summary

This paper employs a computer-aided text analysis (CATA) and a Critical Discourse Analysis (CDA) to explore the strategies of recruitment and intellectual polarization in ISIS (Islamic State in Iraq and Syria) media. The paper's main objective is to shed light on the efficacy of employing computer software in the linguistic analysis of texts, and the extent to which CATA software contribute to deciphering hidden meanings of texts as well as to arrive at concise and authentic results from these texts. More specifically, this paper attempts to demonstrate the contribution of CATA software represented in the two variables of Frequency Distribution Analysis (FDA) and Content Analysis (CA) in decoding the strategies of recruitment and intellectual polarization in one of ISIS 's digital publication: *Rumiyah* (a digital magazine published by ISIS). The analytical focus is on three strategies of recruitment and intellectual polarization: (i) lexicalization, (ii) intertextual religionisation, and (iii) justification. Two main findings are revealed in this study. First, the application of CATA software into the linguistic investigation of texts contributes effectively to the understanding of the thematic and ideological messages pertaining to the analyzed text. Second, the computational analysis guarantees concise, credible, authentic and ample results than is the case if the analysis is conducted without the work of computer software. The paper, therefore, recommends the integration of CATA software into the linguistic analysis of the various types of texts.

Keywords: *CATA software, recruitment, polarization, ISIS, Rumiyah, ideology*

1. Introduction

It is deliberately obvious that using computer software considerably advances the linguistic analysis of texts, especially when it comes to identify the many themes and ideologies included in these texts [1-2]. These computational tools enable analysts and researchers to obtain real, trustworthy, and believable results in a precise and exact way [3]. This paper uses a computer-aided text analysis (CATA) and a critical discourse analysis to examine ISIS (Islamic State in Iraq and Syria) media discourse represented in the digital magazine of *Rumiyah* by exploring the various strategies of recruitment and intellectual polarization in the selected data. The primary goal of this article is to clarify the effectiveness of using computer software for text linguistic analysis, and the extent to which CATA software contribute to deciphering hidden meanings of texts as well as to arrive at concise and authentic results from these texts. More specifically, this paper attempts to demonstrate the contribution of CATA software represented in the two variables of Frequency Distribution Analysis (FDA) and Content Analysis (CA) in decoding the strategies of recruitment and intellectual polarization in one of ISIS 's digital publication: *Rumiyah* (a digital version published by ISIS movement every month). The analytical focus is on three strategies: (i) lexicalization, (ii) intertextual religionisation, and (iii) justification.

Computer software has actually gained significant importance in many corpus linguistics research as a result of the unceasing advancement of technology, since they are utilized to provide theoretical and empirical findings that advance linguistics in general and textual analysis in particular [4-5]. These studies emphasized the crucial function of computer software as digital instruments that support and assist a thorough analytical environment, wherein analysts and linguists may easily manage their analyses by giving acceptable, believable, and ample outcomes. According to [6], using a computational technique to analyze texts not only streamlines the entire text-analysis process but also highlights how contemporary technologies and other social and human sciences are incorporated into corpus linguistics research and ideological discourse analysis.

Exploring the strategies of recruitment and intellectual polarization in ISIS media, as well as the importance of using and applying computer software to the analysis of large data texts represented here in the magazine of *Rumiyah*, is reflected in the application of CATA via the frequency distribution analysis to investigate linguistically the way through which language is ideologically loaded by various meanings pertaining to its users [7-8]. Every discourse carries ideological significance; this ideological significance opens the door for inquiry into ongoing discourses that aim to either uncover new meanings pertaining to texts or to contest and disprove their preexisting interpretations [9]. Crucially, despite the nature of communication in media texts represented in this study in *Rumiyah* magazine, which is further perceived as a

propaganda channel for ISIS, this type of communication is still considered as a mirror of what is going on the ideological agenda of this extremist movement, and, therefore, is perceived as an ideology carrier. This, in turn, constitutes the rationale of selecting the magazine of *Rumiyah* to be computationally and linguistically investigated in this study.

1.1. Research Questions

This paper attempts to answer one overarching research question:

1. To what extent do CATA software contribute to exploring strategies of recruitment and intellectual polarization in ISIs *Rumiyah*?

This overarching research question comprises other subsidiary questions as follows:
a. What are the strategies of recruitment and polarization employed by ISIS in its digital publication of *Rumiyah*?
b. To what extent does Content Analysis (CA) variable contribute to the understanding of ISIS ideology concerning recruitment and intellectual polarization?
c. To what extent does the integration of CATA software into the linguistic analysis of media texts prove useful in deciphering the hidden meanings and ideologies in these texts?

1.2. Research Objectives

The answer to the aforementioned research questions constitutes the main objectives of the study as follows:

1. To highlight the extent to which CATA software help in deciphering the ideological weight of language in media texts.
2. To shed light on the harmonizing relationship between ideological discourse analysis and computer-aided text analysis.
3. To explore the different strategies of recruitment and intellectual polarization in ISIS *Rumiyah*.

The remainder of this article is organized as follows. Section 2 presents the theoretical background as well as the review of literature relevant to the study at hand. Section 3 provides the methodology adopted in this paper, by offering the analytical procedures, the rationale, and the description of the selected data. Section 4 is dedicated to the analysis of the selected data. Section 5 discusses the obtained results of this study. Section 6 concludes the study and provides recommendations for future research.

2. Literature Review

2.1. Computer-Aided Text Analysis

For the purpose of comprehending the thematic and ideological message of texts in corpus linguistics, the usage and use of a computer-aided text analysis (hereinafter, CATA) is beneficial [10–11]. Applying various computer programs to the analysis of texts makes it easier to read those texts, which then makes it easier to investigate the ideological meanings that are hidden in the use of language, whether at the word or sentence level. It is challenging to understand the ideological value that words and/or sentences convey when this ideological significance is addressed manually, that is, without the use of a computer [12]. These days, computer software play a crucial role in the study of languages. The significance of computer software is not limited to computational linguistics studies; but they also play an essential role in pragmatics, semantics, morphology, and discourse studies, among other areas of linguistics. Therefore, the application of these computer software to the linguistic analysis of texts proves useful and can efficiently promote the analytical process in texts with enormous amounts of data, unlike human performance alone, which has been shown to be insufficient, imprecise, and unreliable in linguistic analysis, [13-14].

Importantly, a computer-aided text analysis provides a range of analytical techniques and possibilities that are helpful in the linguistic analysis of media texts. The Frequency Distribution Analysis (FDA), which serves to supply the amount of occurrences a searched item occurs in a text, is one of these analytical tools. [15] argues that the frequency analysis enables analysts to view a broad picture of the textual nature of a particular lexis in a text. The second variable provided by CATA is the variable of Key Word in Context (KWIC), which is computationally enabled by concordance and further serves to drive the analytical wheel towards the significant precedence of one occurrence over another. The KWIC variable gives the context in which a particular searched term appears. To put it another way, KWIC makes the context of the searched items clear, which helps determine the ideological value of the words and/or phrases [16]. Content Analysis is an additional analytical tool made available by CATA. According to [17], content analysis organizes the various words into classes based on their semantic characteristics. Researchers and text analyzers typically use content analysis in conjunction with other CATA software to determine the ideological and thematic relevance of particular terms in texts.

The concordance tool gives CATA the ability to offer the aforementioned analytic alternatives in the context of this paper. With the aid of the computer program of concordance, analysts and language users

can gather, access, categorize, and examine various text kinds, particularly those that are replete with vast amounts of data [18–19]. As a result, concordance may find every instance of a lexis that was searched for in a text, provide the context in which a word is used, and classify all words based on their semantic meaning [20]. The strategies of recruitment and polarization addressed in the current study will be made clear by determining the frequency distribution analysis of the linguistic strategies used to achieve recruitment and polarization in the selected data.

2.2. Ideology and Media Discourse

Ideology has been a main area of concern within linguistic studies in general, and media texts in particular [21-22]. According to van Dijk [23], ideology is "a unique sort of social cognition shared by social groupings," and he claims that it is made up of various notions and beliefs, which are not individually-based, but rather ideas and beliefs created and shared by a group of individuals. van Dijk also maintains that ideologies are socially-oriented, that is, they are initiated and propagated among social groups, such as the ideologies and knowledge shared among teachers, students, a speech community, etc. Such social groups present their ideologies in their discourse practices, either in speech or talks.

The fact that ideologies display polarized debate between members of the in-group and the out-group suggests that they might be seen as "self-group schema" [23]. It is reasonable to presume that each group will create its own conceptual schemata to guide its organizational structure and interactions with other groups. Ideologies "could be created from such group-defining factors as identity/membership, activities, goals, norms and values, social status, and resources," according to [23]. Therefore, these categories are the fundamental principles that underpin the ideological schemata of every group in society, which in turn aids various group members in defending their own interests and disseminating their ideological ideas.

2.3. Critical Discourse Analysis

Many linguists, including [24] among others, have written about Critical Discourse Analysis (CDA). It is textual analysis that makes use of the various textual characteristics. According to [30], CDA is a socio-political method of text and talk analysis that aims to expose the ideologies hiding within them. Critical discourse analysis is a method of language research that emphasizes the ways in

which power relations present themselves in text and speaking across many political and social situations, according to the theory put forward by [24]. The relationship between discourse and power, language and ideology, and language and social relations in society are other topics that the CDA is interested in in addition to the analysis of language critically [25].

Because CDA deals with speech as a social practice, it gives social problems and political issues a lot of attention [26]. According to [27], discourse structures are enacted, verified, legitimized, and reproduced within CDA's analytical and ideological framework to expose the numerous power relations practiced and represented by diverse linguistic techniques in texts and discussion. There are various varieties of CDA for [27], and each type has unique analytical traits. He distinguishes, for instance, between the CDA of a news story and that of a conversational genre. There are differences between the linguistic and discursive representations used in each style of analysis. Each type has distinct concepts and is approached from various angles. To show how specific discourse structures are used to establish and perpetuate relations of power, dominance, and hegemony, each of them is linguistically studied in the context of the CDA theoretical and analytical framework.

van Dijk continues, saying that CDA concentrates on the verbal and textual structures [23]. This method helps to make clear how the various relations are expressed linguistically in dialogue. This in turn serves to expose the hidden ideologies beneath the discourse's surface semantic representations. Significantly, the comprehension of discourse's intended message is aided by the capacity to decipher these concealed meanings. Discourse analysts need to understand how speakers encode their ideological presuppositions in discourse, the purposes these ideological meanings are employed for, and the structures of discourse involved in this ideological process in order to better understand the significance of CDA in exposing the covert discursive structures of power [23].

2.4. ISIS Digital Publication: *Rumiyah*

The influence of ISIS ideology spreads all over the world to the extent that made a large number of people join this organization. They are affected by the propagandist machine launched by this organization, not only in Arabic but also in other languages, such as English, French and Russian. Those who joined ISIS did not have the ability to resist the deception discourse of its propaganda, which is

mainly based on the use and abuse of language and, consequently, fall victims to this extremist organization. From this context, there is a decisive need to tackle this problem from a linguistic point of view. This linguistic approach is highlighted by [28], who claims that the rise of some extremist religious movements and their deliberate discursive attempts to uphold their manipulative ideology pave the way for more counter linguistic analysis and open new linguistic study horizons in the area of religious and ideological discourse.

Crucially, after the events of 9/11, Al-Qaeda terrorized the globe, signaling a dramatic shift in the understanding of terrorism from typical frightening acts to ideology-based ambitions [29].The current critical terrorism studies are nested in a political, legal, cultural, and academic environment, in response to the international concern for security sparked by the repeated perpetration of terrorist attacks by individuals around the world [30]. As a result, and during the last two decades, there has been a slew of research targeted at figuring out not just what people think, but also how they come to think what they believe and how they progress or do not progress from thinking to action. It is noteworthy that the digital publications of ISIS are not confined to *Rumiyah*. However, this organization starts its first digital publication with its first magazine, *Dabiq*, which was firstly released in July 2014 and was ceased in July 2016 after the loss of the city of Dabiq. *Rumiyah* is launched to replace *Dabiq* as a propagandist continuation to ISIS ideological agenda. For [31], *Rumiyah* is considered one of the effective propagandist tools used by ISIS to communicate its ideologies.

The significance of selecting *Rumiyah* to be linguistically investigated here can be attributed to the fact that it is the propagandist channel through which ISIS ideology is encoded and conveyed to the whole world. Embracing such an ideological weight, ISIS *Rumiyah* offers a type of ideological discourse that can be said to be worthy of linguistic research and textual analysis. Conducting a linguistic investigation of this magazine, which is stigmatized to be extremist, might help readers resist tactics of deceptions, manipulation, and falsification that entirely depend on deceitful religious argumentations.

2.5. Related Studies

One can see from prior research on the use and applications of software in general, and frequency distribution analysis in particular, that these programs are incredibly useful for the study of massive data texts, such fictional novels. For instance, [32] investigated the semantics, rhythm, and tempo of narrative storytelling using data mining. They defined the degree to which input data can considerably influence how fictional writings are

ultimately interpreted and came to the conclusion that data mining through visualization can reflect the semantic classification that a fictional text carries. Another study by [33] looked at how well concordance works for analyzing fictional dialogue. This study showed that concordance may be used on texts with a lot of data to produce real, reliable findings that help with text comprehension. The frequency distribution analysis and key word in context were the two analytical variables that this study concentrated on that were produced via concordance. The study came to the conclusion that using concordance to analyze literary genres helps readers understand the themes and ideologies of texts as well as the author's intended message.

Furthermore, [34] demonstrated the significance of adopting contemporary technical software in the creation of accurate translations in the subject of translation studies. The study recommended that university courses in translation be taught and learned in Saudi Arabia's various academic institutions using computer software. Additionally, [35] carried out a study to examine the effects of CALL software (computer assisted language learning) on the academic performance of students majoring in English as a foreign language (EFL) in Saudi universities. This study made it clear that the use of CALL in EFL settings had a favorable impact on the various learning outcomes for EFL students. The purpose of the study is to determine how well the computer apps SnagitTM and Screencast are at helping people learn to read. The study found that using the two computer programs helps kids' academic performance by promoting the linguistic abilities necessary for mastering the reading skill. According to the study, such technological integration into EFL courses serves to improve students' communicative abilities as well as their language proficiency. The conclusion of this study suggests that different CALL software be applied to various EFL courses in the context of Saudi universities and in the course designation process at Saudi institutions.

The extent to which concordance aids in investigating the linguistics of opening remarks by decoding the numerous ideologies beyond the semantic proposition of the linguistic expressions was examined in a study [36] done in the context of legal discourse studies. In order to determine the hidden meanings and pragmatic goals that were pursued as a result of the frequent use of particular lexical elements in the texts under consideration, this study used a frequency distribution analysis. The studies cited above demonstrate the useful and important function that computer software may play in linguistic research, whether on texts that are fictional or outside the realm of fiction, such as in EFL and legal settings. It is predicted that such constructive importance will be expanded in this work to

give a new angle on how CATA might be used to interpret the ideologies of function words in fictional discourse.

3. Methodology

This section presents the approach of the study, the corpus and the procedures adopted in data analysis.

3.1. Approach of the Study

In order to analyze the data, this research employs both a critical discourse analysis and a computer-aided text analysis. This means that throughout the many stages of analysis in this study, the integration between the two methodologies will be demonstrated. This is done by looking at the underlying ideologies of the chosen data and then performing a frequency analysis using a concordance of particular terms that have been flagged as suggestive in each section of the magazine under investigation's ideological analysis. Significantly, the language analysis done in this research, which aims to expose the extreme ideology in *Rumiyah's* speech, was supported by the application of concordance functions to aid in obtaining correct results.

3.2. Data

The first edition (Issue No. 1) of *Rumiyah* magazine, which was released in September 2016 by ISIS propaganda apparatus, serves as the corpus of the current study. In the study of the ideological discourse of religious extremism, some excerpts from the chosen magazine are highlighted and designated as linguistically suggestive. *Rumiyah* magazine, which replaced its previous one called *Dabiq*, is regarded as one of ISIS most successful propaganda weapons for spreading its ideas. Arabic, English, and Russian are just a few of the languages in which the magazine is published with.

3.3. Analytical Procedures

The analytical procedures adopted in this study constitute three stages. The three stages revolved around the use of three variables of CATA: frequency distribution analysis (FDA), key word in context (KWIC), and content analysis (CA). The first stage constituted preparing the text of the selected magazine, by uploading it electronically so as to be ready for analysis. This stage offered a general idea of the way the discursive atmosphere of the selected magazine is communicated via its propagandistic discourse.

In the second stage a computer-aided text analysis is employed to decipher the strategies of recruitment and polarization in *Rumiyah*. This was conducted by using a frequency distribution analysis to the whole magazine, wherein occurrences of each searched item were monitored. The third stage presented an interpretative task in which all highlighted items were discussed in terms of their indicative occurrences within the particular contextual environment in which they occur. After the three analytical stages, findings were firstly reported, and then interpreted in terms of the extent to which the searched items contribute to conveying specific ideologies that target the recruitment and the polarization of readers.

3.3. The Frequency Distribution Analysis

In light of this paper, concordance work was limited to reflecting a frequency distribution analysis for the searched lexical items that were recognized as indicative in the study of modality as ideology carriers during the research procedure. Concordance is used to conduct this frequency analysis. In order to arrive at trustworthy and succinct results that could be challenging to achieve if the analysis is undertaken without the use of computer software, concordance makes it easier to access and examine vast data texts [26]. This serves as a quick summary of the linguistic context in which the term appeared in the text. According to Kennedy [20], concordance is a piece of software that generates every instance of a specific word or lexis in a corpus. Furthermore, Hockey [19] notes that the searched item and the context in which it occurs result in a concordance or frequency analysis. He believes that Concordance provides KWIC (Key Word in Context), which provides a wealth of information about the searched word in its many textual settings. This furthers the interpretive process and opens up new avenues for understanding the linguistic representation.

4. Data Analysis and Results

In this part, the paper presents four strategies that are employed in ISIS to achieve recruitment and polarization via the discourse of *Rumiyah*. The four strategies are (i) lexicalization, (ii) intertextual religionisation, and (iii) justification.

4.1. Lexicalization

Ideologies are always carried by Lexis [32]. Through the use of both good and negative phrases, Rumiyah's language reflects the jihadist ideology from an interpersonal perspective. This tactic has been used to illustrate the dynamic between ISIS enemies and other groups. Each group has been described using a variety of ideologies-focused vocabulary throughout *Rumiyah*. As a

result, words like *disbelievers*, *mushrikin*, *murtaddin*, *tawaghit*, and *kuffar* have been semantically antonymized by terms like *believers*, *muwahiddin*, *mujahidin*, and *martyrs*. On the phrase level, the same oppositional lexicalization is likewise communicated. This is made abundantly obvious by expressions like "enemy of Allah," "people of untruth," "wicked scholars," and "Rafidi Murtaddin," which are incongruous counterparts to phrases like "righteous folk," "fighters for Allah's cause," "persevering brothers," and "lions of the Ummah."

It is important to note that this lexicalization, which is diametrically opposite, reflects both an in-group positive presentation and an out-group negative presentation, depending on the words and phrases used to convey positive or negative appraisal. The assumption that ideologies are transmitted through lexis—that is, that words are considered ideology transmitters in discourse—is also supported by this. Therefore, in two senses, ISIS *Rumiyah's* use of terminology with ideological connotations is particularly suggestive. First, it highlights the meaning of jihad as one of ISIS primary theological beliefs, which is represented through the usage of words and phrases whose connotations, whether associatively or incompatibly, connote the meaning of jihad; second, it shows how ISIS and its opponents interact with one another as a favorably self-presented in-group and a negatively other-presented out-group, respectively. A computer-based frequency analysis is displayed in Tables 1and 2, and it reflects the frequency of positive and negative lexicalization in the selected issue of *Rumiyah*.

Table 1. Positive lexicalization in *Rumiyah*

Lexis	Frequency
tawheed	57
ummah	34
victory	32
donation	31
mujahidin	25
brothers	20
believers	13
righteous	9
fighters	4
virtue	4
victorious	3
shahada	2
muwahiddin	2
martyrs	1
martyrdom	1
righteousness	1
worshipers	1
lions	1

elite	1
superiors	1
privileged	1
honesty	1

Table 2. Negative lexicalization in *Rumiyah*

Lexis	Frequency
opponents	53
tyrants	49
deception	47
murtaddin	42
mushrikin	20
kafir	18
kuffar	12
taghut	10
disbelievers	9
kufr	9
tawaghit	7
enemies	5
enemy	5
oppressor	4
mushrik	3
fools	2
wicked	1
manipulation	1
exploitation	1
exploit	1
deceitful	1
fraudulent	1

The above two tables demonstrate a frequency distribution analysis of both positive and negative lexicalization in ISIS *Rumiyah*. As indicated in the two tables, positive lexis are frequently employed in Rumiyah to attract and recruit more affiliate to ISIS. The positive description of the in-group serves to communicate a positive self image to readers, which in turn functions to persuade readers that ISIS is the appropriate movement to join. Here lies significance of lexicalization to achieve polarization. In the same vein, the use of negative lexis in Table 2 serves to vilify ISIS opponents by ascribing every bad meaning to them. This is conducted by a high frequent use of words that carry both the associative and connotative meaning of dishonesty, deception and disloyalty. These meanings are associated to those who oppose ISIS ideologies and refuse to adopt its ideological agenda.

4.2. Intertextual Religionisation

The second strategy that targets recruitment and polarization in ISIS *Rumiyah* is intertextual religionisation.

This strategy is entirely based on the use of specific expressions from Islamic scriptures, including the Holy Quran and Hadith (prophetic sayings) to propagate for particular ideologies and to guarantee more recruited affiliates to ISIS. Consider the following table.

Table 3. Source and number of scriptural quotes in *Rumiyah*

Source of scriptural quotes	Frequency
Quran	66
Hadith	48
Total	114

Table 3 indicates that ISIS *Rumiyah* has a very high frequency of intertextual religionisation, which is represented in the scriptural quotes it employs from the Quran and the Hadith. This in turn casts religious shadow on ISIS discourse in *Rumiyah* which also serves to achieve a high level of recruitment and polarization. Crucially, the use of religion contributes significantly in the process of communicating both persuasive and/or manipulative ideologies.

4.3. Justification

A further strategy of recruitment and polarization in ISIS *Rumiyah* is justification. Some words, phrases and sentences are frequently utilized in ISIS Rumiyah to justify their mischievous acts so as to gurantee more affiliates to the mveent. Consider the following table.

Table 4. Words and collocations used to justify in *Rumiyah*'s discourse

The expression	Frequency
jihad	59
jama'ah	47
Islamic war	23
Islamic Khilafah	19
Ummah	32
victorious attacks	17
religious war	11
sacred mission	9
victorious soldiers	6
loyal members	6
true believers	5
cooperative brothers	2
wicked enemies	19
oppressive tyrants	13
Devil's supporters	7
Hell inhabitants	2

As demonstrated in Table 4, specific words and collocations are used in the discourse of ISIS *Rumiyah* to justify the violent and mischievous acts conducted by the movement. The sole aim of these collocations is to delineate these acts as legal and necessary for the continuation of the movement. Significantly, justification is one of the political and ideological tactics used to achieve manipulation. In the context of this study, justification is employed to recruit more affiliates to ISIS, as well as to communicate a state of religious polarization in ISIS propaganda discourse.

5. Discussion

The use of CATA software enhances the analytical integration between discourse studies and computers, particularly in the linguistic analysis of massive data texts, by helping to extract ideologies from language and better grasp the power of function words. Analytical results show that the two variables FDA and CA are complementary in that the latter is context-oriented and aims to identify the indicative terms produced by the former's total frequency analysis. Significantly, both FDA and CA contribute to the linguistic analysis of literary texts, notably to uncover latent ideologies that go beyond the simple semantics of language utterances.

The analysis has also demonstrated that ISIS *Rumiyah* has ideological value. This is consistent with Fowler's [16] [31] contention that language and ideology are mutually reinforcing in that each linguistic unit has the capacity to convey a particular ideology of its user. The use of particular linguistic expressions over others is ideological in character, meaning that it is generated in this particular method and with this specific linguistic expression to communicate particular ideological connotations of the speaker or writer. Ideology is typically present in language. As a result, each and every word can reflect the ideology of the speaker. In the framework of this study, ideologies are maintained and communicated in speech through more than just content words.

The analysis clarifies that the application of a computer-based frequency analysis contributes to discourse studies, particularly to the textual analysis of literary texts. With the help of the frequency analysis, CDA analysts can discover the ideological significance encoded in texts, as well as to decipher the meanings pertaining to words or phrases that in turn affect the ultimate interpretation of texts. This study also proves the relevance of CDA to the study of the theme of manipulation. This is clearly shown through the core concern of CDA in revealing manipulative tactics that depend on the use and misuse of language. This lies in the fact that CDA is totally concerned with exposing relations of power and ideology as deep-rooted components

of its framework, particularly in ideology-carriers literary texts [28]. A CDA of manipulation discourse attempts to affect change in political beliefs, and to create an alteration in personal views and convictions [37].

The analysis clarifies that ISIS manages to communicate its recruitment and polarization via employing strategies of beautifying selfness and vilifying otherness, which in turn are Lexical-Oriented Ploys. Lexis is the sole foundation of the techniques of positive self-presentation and negative other-presentation. This is conducted by using a frequency study on several terms that had particular beliefs attached to them. The number of times each word appears in the text and the context in which it appears, both of which are made clear by concordance, demonstrate the ideological weight that each of the searched terms has in the sample text. [38–39] highlight the importance of words in the examination of texts because they contain distinct ideological meanings intended for particular objectives. According to the results of the study, words are used to manipulate people's ideologies. The same point is also put up by [40], who contends that one area of CDA's attention has been its capacity to strategically critique the various political conceptions that are used for covert political objectives. Additionally, this is consistent with van Dijk's [23] claim that one approach to portray others poorly is to choose strong negative adjectives to characterize the out-actions group's.

It is linguistically evidenced that ISIS religious ideologies, which are encoded in *Rumiyah's* discourse, attempt to represent ISIS as a legitimate religious organization. This signifies to attract more affiliates to its ideological agenda. The complete dependence on religious scriptures, particularly Quran and Hadith, reflects a dexterous employment of emotive language, which directly targets Muslim readers, specifically who do not have better religious explanatory background for a right interpretation of the recurrent scriptural quotes that are used every now and then in *Rumiyah*. Indicatively, this adds (on the part of ISIS) a sense of legitimacy, credibility and authenticity to ISIS discourse.

The analysis of the selected data, which was supported by concordance, showed that Jama'ah and Jihad were the two main extremist doctrines that ISIS attempts to convey in the discourse of *Rumiyah*. These ideologies have been identified and semantically expressed through interpersonal meaning patterns that appear in both positive and negative lexicalization and mood (speech acts and modality). These ideological conceptions' semantic interpretations have revealed a growing reliance on religious concepts that are grounded in deft intertextual processes [41]. These concepts in turn encourage extremism and violence against

the other and produce a religious discourse that is group-oriented and rife with deliberate ideological and discursive frameworks meant to heighten the ideological divide between in-groups and out-groups.

The analysis demonstrates that CDA is a text-reading technique that deconstructs interpretation. The reader's background, whether political, social, cultural, religious, or anything else, is wholly determinative. This method of analysis permits several readings of texts based on the idea of the readership, but it does not offer a definitive, absolute, or conclusive meaning to texts. This study also highlights how literature constantly offers us a variety of literary forms that allow for a wide range of interpretations that are pertinent to the present period. The primary goal of CDA is to find additional meanings in texts since it views all texts as sources that may be examined in light of the situation at hand. The primary goal of CDA is to find additional meanings in texts since it views all texts as sources that may be examined in light of the situation at hand. This method of language analysis is believed to be culturally, socially, and religiously specific [42].

6. Conclusion

This study presents a linguistic analysis of extremist ideas in ISIS *Rumiyah* using computer-based frequency analysis and van Dijk's approach of ideological discourse analysis. The investigation demonstrates the value of using computer software programs to analyze texts from a linguistic perspective. It has also been demonstrated that using a frequency analysis leads to more accurate and convincing analytical conclusions and improves comprehension of the text's textual and contextual meanings. The results of the analysis demonstrated the value of computer-based concordance-based frequency analysis for discourse studies in general and linguistic analysis in particular. Through the process of data analysis, this computational technique aids in producing reliable and accurate results, which in turn helps expose underlying ideas in the text under study that go beyond the use of individual words.

The analysis also showed that *Rumiyah*, a propaganda project of ISIS, appears to advance a certain ideological goal. The ultimate discursive image of ISIS is created by integrating the magazine's textual structure and contextual milieu. In order to establish a legitimately favorable self-presentation to ISIS, this image is computationally and semantically demarcated in a way that, on the surface, exhibits a reciprocal persuasive form of discourse while, implicitly, shows a nonreciprocal extremist one. This in turn makes it possible for this movement to propagate its very extreme views.

This research suggests additional uses of computer-aided text analysis software on different texts. This might produce results that differ from those of the current study's methodology. It might also show how important computer software is to discourse studies and corpus linguistics from an analytical standpoint.

Acknowledgment

References

[1] Reddington, J., Murtagh, F., and Douglas, C., Computational properties of fiction writing and collaborative work. International Symposium on Intelligent Data Analysis, pp. 1-13, (2013).

[2] Khafaga, A., and Shaalan, I., Using concordance to decode the ideological weight of lexis in learning narrative literature: A computational approach. International Journal of Advanced Computer Science and Applications, 11(4), pp. 246-252, (2020).

[3] Beatty, K., Teaching and researching computer-assisted language learning. Harlow: Longman Pearson, (2010).

[4] Thabet, A., *Applied computational linguistics: An approach to analysis and evaluation of EFL materials*. Damietta Faculty of Education Journal, 1(13), pp. 7-39, (1990).

[5] Khafaga, A., and Shaalan, I., Pronouns and modality as ideology carriers in George Orwell's Animal Farm: A computer-aided critical discourse analysis. TESOL International Journal, 16(4.2), pp. 78-102, (2021).

[6] Eltahir, M., Al-Qatawneh, S., and Alsalhi, S., E-Textbooks and their application levels, from the perspective of faculty members at Ajman University, U.A.E. International Journal of Emerging Technologies in Learning, 14(13), pp. 88-104, (2019).

[7] Stockwell, G., Computer-assisted language learning: Diversity in research and practice. Cambridge: Cambridge University Press, (2018).

[8] Beatty, K., *Teaching and researching computer-assisted language learning*. Harlow: Longman Pearson, (2010).

[9] Khafaga, A., *Strategies of political persuasion in literary genres: A computational approach to critical discourse analysis*. Germany: LAMBERT Publication, (2017).

[10] Wiechmann, D., and Fuhs, S., Concordancing software. Corpus Linguistics and Linguistic Theory, 2(2), pp. 107-127, (2006).

[11] Fairclough, N., *Language and power*. London and New York: Longman, (1989).

[12] Bond, E., Lear, In *plays two*. London: Eyre Methuen, (1978).

[13] Pim, C., *Emerging technologies, emerging minds: Digital innovations within the primary sector*. In: G. Motteram (Ed.), Innovations in learning technologies for English language teaching, London: British Council, pp. 17-42, (2013).

[14] Jarvis, J., and Pastuszka, L., *Electronic literacy reading skills and the challenges for English for academic purposes*. CALL-EJ Online, 10(1), (2008).

[15] Pinner, R. S., *Teachers' attitudes to and motivations for using CALL in and around the language classroom*. Procedia - Social and Behavioral Sciences, 34, pp. 188-192, (2012).

[16] Fowler, R., and Kress, G., Critical linguistics, in Fowler, R., Hodge, R., Kress, G., and T. Trew, T., (Eds). *Language and control*. London: Routledge and Kegan Paul, pp. 185- 213, (1979)

[17] Ma, Q., *From monitoring users to controlling user actions: A new perspective on the user-centred approach to CALL*. Computer Assisted Language Learning, 20(4), pp. 297-321, (2007).

[18] Hockey, S., *A guide to computer applications in the humanities*. London: The Johns Hopkins University Press, (1980).

[19] Kennedy, G., *An introduction to corpus linguistics*. London & New York: Longman, (1998).

[20] Barger, A., and Byrd, K., Motivation and computer-based instructional design. Journal of Cross-Disciplinary Perspectives in Education, 4(1), pp. 1-9, (2011).

[21] Chen, Y. H., Computer mediated communication: The use of CMC to develop EFL learners' communicative competence. Asian EFL Journal, 7(1), pp. 167-182, (2005).

[22] van Dijk, T. A., Ideology and discourse analysis. Journal of Political Ideologies, 11(2), pp. 115-140, (2006).

[23] Romeo, K., A web-based listening methodology for studying relative clause acquisition. Computer Assisted Language Learning, 21(1), pp. 51-66, (2008).

[24] Dzekoe, R., *Computer-based multimodal composing activities, self-revision, and L2 acquisition through writing*. Language Learning & Technology, 21(2), pp.73-95, (2017).

[25] Wiechmann, D., and Fuhs, S., *Concordancing software*. Corpus Linguistics and Linguistic Theory, 2(2), pp. 107-127, (2006).

[26] Krieger, D., *Corpus linguistics: What it is and how it can be applied to teaching*. The Internet TESL Journal, IX (3), pp. 123-141, (2003).

[27] van Dijk, T. A., Discourse, knowledge and ideology: Reformulating old questions and proposing some new solutions, in Martin, P., Aertselaer, J. N. and van Dijk, T. A., (Eds.), *Communicating ideologies: Multidisciplinary perspectives on language, discourse, and social practice*. New York & Oxford: Peter Lang, pp. 5-38, (2004).

[28] Fowler, R., On critical linguistics, in Coulthard, C., and Coulthard, M., (Eds.), *Texts and practices: Readings in critical discourse analysis*. London & New York: Routledge, pp. 15-31, (1996).

[29] Stockwell, G., *Computer-assisted language learning: Diversity in research and practice*. Cambridge: Cambridge University Press, (2018).

[30] van Dijk, T. A., Ideology and discourse analysis. Journal of Political Ideologies, 11(2), pp. 115-140, (2006).

[31] Fowler, R., *Language in the news: Discourse and ideology in the press*. London: Routledge, (1991).

[32] Khafaga, A., *Exploring ideologies of function words in George Orwell's Animal Farm*. Pertanika Journal of Social Sciences and Humanities, 29(3), pp. 2089 – 211, (2021).

[33] Yavus, F., The use of concordancing programs in ELT. Procedia- Social and Behavioral Sciences, 116, pp. 2312-2315, (2014).

[34] Omar, A., Khafaga, A., and Shaalan, I., The impact of translation software on improving the performance of translation majors. International Journal of Advanced Computer Science and Applications, 11(4), pp. 287-292, (2020).

[35] Khafaga, A., and Alghawli, A., The impact of CALL software on the performance of EFL students on the Saudi university context. International Journal of Advanced

Computer Science and Application, 12(7), pp. 304-312, (2021).

[36] Khafaga, A., and Aldossari, B., The language of persuasion in courtroom discourse: A computer-aided text analysis. International Journal of Advanced Computer Science and Application, 11(7), pp. 332-340, (2021).

[37] Heyden, M. L., Oehmichen, J., Nichting, S., and Volberda, H. W., Board background heterogene-ity and exploration-exploitation: The role of the institutionally adopted board model," Global Strategy Journal, 5(2), pp. 154–176, (2015).

[38] Khafaga, A. F., A computational approach to explore the extremist ideologies of Daesh discourse. International Journal of Advanced Computer Science and Applications, 11(8), pp. 193-199, (2020).

[39] Flowerdew, J., Concordancing as a tool in course design. System, 21(2), pp. 231-244, (1993).

[40] Khafaga, A., Linguistic manipulation of political myth in Margaret Atwood's The Handmaid's Tale. International Journal of English Linguistics, 7(3), 189-200, (2017).

[41] Khafaga, A., Linguistic representation of power in Edward Bond's Lear: A lexico-pragmatic approach to critical discourse analysis. International Journal of English Linguistics, 9(6), 404-420, (2019).

[42] Sornig, K., Some remarks on linguistic strategies of persuasion, in Wodak, R. (Ed.), *Language, power and ideology: Studies in political discourse.* John Benjamins Publishing Company, pp. 95-113, (1989).

Ayman Khafaga is an associate professor of linguistics at the department of English, College of Science &Humanities, Prince Sattam Bin Abdulaziz University, Saudi Arabia. He is also an associate professor of linguistics, Faculty of Arts & Humanities, Suez Canal University, Egypt. His research interests include computational linguistics, e-learning, discourse studies, semantics, pragmatics, and stylistics.