Lexical Cohesive Devices and English Writing Quality

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Abstract;

This mixed-methods study investigated the use of lexical cohesive devices (LCD) for 56 Arab English as a Foreign Language (EFL) learners in the UAE. The quantitative descriptive approach was used to find out the frequency of LCD in learners' essays, and the quantitative correlational approach was implemented to examine the association between LCD and the writing quality. However, the qualitative descriptive approach utilized semi-structured interviews of 4 EFL teachers and 15 EFL learners to identify the challenges that they encountered regarding using LCD in essay writing. The findings demonstrated that repetition and collocations were the most frequently used LCD, while meronyms and hyponyms were the least common in participants' essays. There was also a moderate positive correlation between cohesive density and the writing quality. The difficulties reported by the participants in dealing with LCD included themes pertaining to awareness and instruction, de-contextualization of cohesive devices (CDs) and feedback and correction.

Key words: lexical cohesive devices, L2 learners, cohesive devices, essay writing

Introduction

Rationale and Significance

Learning to write effectively in a second language is challenging because of the many steps involved (Krol, Long & Richards, 1990). These steps include being able to think in the target language, come up with ideas, and then string them together using a variety of CDs that link these ideas together in a meaningful way (Ampa & Basri, 2019). Essay writing is the highest form of linguistic productivity since it necessitates an excellent command of so many different linguistic structures. Additionally, essays closely link sentences that make use of language components that promote cohesion (Redman & Maples, 2017). Cohesion is essential for reading and understanding but is challenging for language learners to achieve when writing (Abu-Ayyash, 2021). CDs have been studied in copious research papers with a diversity of foci, particularly their use in students' essays (e.g., Abu-Ayyash, 2020; Liu & Braine, 2005). In addition, CDs have gained much momentum due to their role in building textual cohesion and facilitating coherence. In most cases, previous studies have focused on whether or not the use of CDs correlates with or affects writing quality. This has been studied from different angles, in different contexts and with different research approaches, yet no definitive answer has been reached as to whether such a correlation or impact holds.

The present study is anticipated to enrich the existing body of knowledge in a number of ways. Firstly, it examines the use of LCD that have been under-researched, compared to grammatical CDs, particularly for EFL Arab learners of English. In order to reach an all-embracing explanation to the relationship between CDs and the writing quality, LCD must be considered in full, which is the aim of this paper. Secondly, no research has so far been done on CDs used in critical review essays, which makes this study a first apropos text type, and is therefore anticipated to add a missing piece to the existing body of knowledge. Thirdly, the present study gathered data from written essays and interviews to help interpret the data in a fuller way, with the ultimate purpose of adding more in-depth understanding and justification to the nature of the relationship between LCD and the writing quality.

Definition of Key Terms

The terms to be defined in the current paper include *cohesion, lexical cohesion, antonyms, synonyms, repetition, hyponyms, meronyms* and *collocations*. Wang and Zhang (2019) defined **cohesion** as semantic linkages that distinguish texts from non-texts. Halliday and Hasan (1976) separated cohesion into grammatical and lexical. The current study focuses only on lexical cohesion. **Lexical cohesion** is vocabulary-based and non-grammatical (Halliday & Matthiessen, 2014). According to Halliday and Hasan's (1976) cohesion model, lexical cohesion is divided into two categories: reiteration (antonyms, repetition, synonyms, hyponyms, meronyms and meronyms) and collocation (see Table 1). Saud (2018) defined **antonyms** as opposite words in meaning. However, **synonyms** are words with similar meanings in one language. Furthermore, Chan et al. (2000) defined **repetition** as repeating the same word or lexical item. **Hyponymy** is the lexical relationship between two items, one is superordinate and the other is subordinate (Wang & Zhang, 2019). **Meronyms**, according to Kafes (2012), refers to the part-whole relationship between two lexical items. Paltridge (2018) defined **collocations** as two or more lexical items that collocate to create a new meaning.

Table 1. Examples of lexical cohesive devices (Abu-Ayyash, 2017)

Category	Type of tie	Example
Lexical cohesion	Repetition	They were lost in the **woods** for three days. The **woods** were really frightening.
	Collocation	Let's **go swimming** this evening.
	Hyponymy	I bought a number of **electronic devices** last month. I got an **iPhone**, an **iPad** and an **iPod**.
	Synonymy	I **left** my house last year. Actually, I **departed** the whole area.
	Antonymy	My friend lives in a **small** villa. It is located in a **huge** compound.
	Meronymy	My **car** broke down last night. There was something wrong with its **engine**.

Previous Studies

Cohesive Devices Examined in Written Academic Discourse

Most studies that have been conducted to investigate CDs in academic contexts have focused mostly on examining if there is a correlation between CDs in students' essays and the quality of their writing (Abu-Ayyash, 2017). The results of these studies have not reached a definite answer to whether or not there is a relationship between CDs utilized and the quality of the piece of writing produced (Ghasemi, 2013). Likewise, there is a scholarly controversy as to whether the use of CDs corresponds with the quality of students' essays (Al-Shamalat & Ghani, 2020). For example, several studies indicated that there was no correlation between the density of CDs and the quality of written essays (Al-Shamalat & Ghani, 2020; Castro, 2004b; Johnson, 1992; Sidabutar, 2021; Zhang, 2010). A plethora of studies, however, found a significant correlation between the density of CDs and the quality of essays (e.g., Chanyoo, 2018; Ferris, 1994; Islami et al., 2022; Mora et al., 2021; Sanchez, 2019).

Crossley and McNamara (2010) conducted a study to examine expert ratings of different text features including coherence and cohesion in order to determine their relations with holistic essay quality. The study concluded that coherence was not necessarily achieved using CDs, and expert raters evaluated coherence based on the absence of cohesive ties rather than their presence. Furthermore, expert raters ranked essays of higher quality and proficiency if they were hard to process (e.g., when essays included less common lexis and more complicated syntax). In an earlier study, Johnson (1992) had reported that there was no significant difference between the number of CDs used and the overall quality of essays among a number of three groups: 20 Malay students writing in Malay, 20 English native speakers writing in English, and 20 Malay students writing in L2 English of different essay types including descriptive, argumentative, and persuasive.

A number of studies reached findings that came in contrast to the results reached by Crossley and McNamara (2010) and Johnson (1992). For instance, Liu and Braine (2005) established a correlation between the frequency of CDs and the quality of writing for 50 argumentative compositions written by Chinese undergraduate non-English majors. Their findings showed that LCD represented the largest percentage among all CDs utilized whereas conjunctions were the least common category. In a more recent study, Chanyoo (2018) found that students' writing scores correlated with the total number of CDs used in essays written by Thai undergraduate students.

The Challenges of Using Cohesive Devices in Essay Writing

Islami et al. (2022) concurred that EFL learners had difficulties with LCD and text feature awareness. Similarly, Ong (2011) claimed that L2 learners confronted a number of obstacles in terms of lexical coherence, including needless addition, omission, excessive or redundant repetition of lexis, and improper usage of cohesive links. These obstacles were consistent with those found by Saputra and Hakim (2020), who stated that a lack of expertise with CDs was the most major barrier to properly applying these ties in written texts. Similarly, Kirana et al. (2018) stated that lack of coherence awareness and inappropriate application of language elements were two of the most significant challenges faced by EFL learners. Johns (1984) observed in a different study that lexical coherence was not utilized with the same frequency as by native language speakers. Consistent with the aforementioned findings, Ahmed (2010), Khalil (2019), and Salkie (2006) acknowledged that the majority of non-native English speakers tended to repeat the same lexis in their writing due to lack of lexical expertise and the incapacity to utilize lexis while composing written texts. In addition, they cited interference between L1 and

L2 and lack of appropriate feedback from English professors as obstacles to students' efficient use of lexical coherence.

Considering the previous studies on CDs, it can be rightly claimed that research on the relationship between lexical cohesion and EFL students' writing quality is still scarce. The existing body of literature either looked at grammatical cohesion alone or the totality of grammatical and LCD (e.g., Abu-Ayyash, 2020; Crossley & McNamara, 2010; Johnson, 1992), which calls for a need to examine the dialogue between LCD and the writing quality. Therefore, the present paper is anticipated to add an important piece to the jigsaw that comprises a full understanding of the relationship between the use of CDs and the writing quality.

Research Questions

The following research questions have been formed to govern the scope of the study.

RQ1. What is the frequency of each type of lexical cohesive device in grade nine L2 learners' writing a critical review essay?

RQ2. What is the overall correlation between the total number of lexical cohesive devices used and the writing quality of grade nine L2 learners?

RQ3. What are the difficulties that grade nine L2 learners encountered in dealing with lexical cohesion in writing from the perspectives of both teachers and learners?

Research Methods

Quantitative Research Methods

The study adopted the quantitative descriptive statistics approach to answer the first research question by analyzing the frequency of occurrence of each category of LCD. However, the quantitative correlational statistics approach was employed in order to answer the second research question through investigating the overall correlation between the total number of LCD used and the quality of writing produced by grade nine L2 learners (Creswell, 2014).

Qualitative Research Methods

The qualitative descriptive approach was used in line with the third research question. Four English teachers and 15 grade nine L2 learners were interviewed using semi-structured interviews to explore their challenges in terms of lexical cohesion and its implementation in essay writing (see Appendix A, B). The chosen participants were selected using criteria-based sampling to represent the three main proficiency levels based on categorizing their final writing mark; the high, medium, and low proficiency levels according to the School Inspection Supplement Document issued by the Dubai Inspection Bureau in 2018. The semi-structured interview questions targeted areas related to learners' awareness of LCD, the availability of teaching resources, the challenges they encountered with LCD, the impact of using LCD on the writing quality and the most and least common LCD used by learners. These areas were focused on by the researchers based on a thorough analysis of similar studies in the existing literature.

In line with the semi-structured interview protocol used in the study, the participants were contacted, and their approval was taken beforehand. Each interview lasted for 30 minutes during which the researchers re-introduced the purpose of the study to the participants, and they assured them of the data confidentiality and their identity's anonymity. Interviews were recorded, transcribed and qualitatively analyzed using thematic analysis. To do this, the researchers looked thoroughly at the data to identify chunks of similar responses that were later coded accordingly. The researchers were then able to identify and generate relevant and meaningful themes or patterns based on an analysis of the interview data.

Framework of Analysis

Because it is the most comprehensive model of cohesion and due to its popularity in studies investigating CDs, Halliday and Hasan's (1976) model of cohesion was selected as the framework of analysis for the present study. The model provides a detailed account on the linguistic devices that can be used to facilitate textual coherence by linking the different parts of the text together, thus maintaining texture. The model includes grammatical CDs (reference, substitution, ellipsis, conjunctions) and LCD (repetition, hyponymy, meronomy, synonymy, antonymy and collocation). The present paper focuses on the latter set that was explained earlier.

Data Collection and Corpus

The corpus used in this study consisted of 56 critical review essays written by 56 grade nine EFL learners (32 females and 24 males) at an American school in Sharjah, UAE. Students were Arab learners of different nationalities (e.g., Emiratis, Egyptians, Syrians, and Jordanians) whose mother tongue (L1) was Arabic and who were studying English as part of the English Language Arts (ELA) course requirements at school. The qualitative data were collected from semi-structured interviews of 4 English teachers and 15 grade nine L2 learners. The

focus of the present study on grade nine Arab EFL learners is mainly because it is the beginning stage of secondary education. Besides, they need to undertake international exams including International English Language Testing System (IELTS) and Test of English as a Foreign Language (TOEFL) in which they need to answer writing tasks by composing cohesive texts to ensure achieving high scores. This is a compulsory requirement at this stage of education for grade nine EFL learners.

The writing Prompt

As part of their final writing assessment at school, grade nine L2 learners had a 90-minutes exam session to produce a 350-word critical review essay on either a poem or a short story they had studied in their English course (see Appendix D). The students were asked to write drafts, and the final essays were submitted to the teacher and analyzed for the purpose of the current study (see Appendix E).

Procedures and Research Instruments

The written essays were graded based on a 10-points scale holistic rubric generated by Holt McDougal online software, which is the online curriculum resource tool for learners of English at school (see Appendix C). Therefore, the writing scores were based on a rubric related to the writing quality of students including the following criteria:

· Organization (4 points)

· Elements of critical review (3 points)

· Grammar, usage, mechanics and spelling (3 points)

The sample essays were collected and scored by four English teachers, who taught grade nine students at school. They had solid experience in teaching and assessing writing for at least eight years. The inter-raters had almost perfect agreement as identified by the Cronbach Alpha which was 0.805. Furthermore, the Statistical Package for Social Sciences (SPSS) was used to calculate inter-raters' consistency that proved to be 0.94; thus, it showed a high consistency among the four raters. Thereafter, manual annotation was done by the researcher to calculate the frequency of the six targeted lexical cohesion categories in students' writing. Lastly, the Coh-Metrix, which is an automated analysis tool, was used to confirm the reliability of the frequency of occurrence of each LCD found in the corpus.

Findings and Discussion

RQ1: What is the Frequency of Each Type of Lexical Cohesive Devices in Grade Nine L2 Learners' Writing?

Table 2 illustrates the descriptive statistics of the frequency of each type of LCD by grade nine L2 learners. It is noticed that repetition was the most frequently LCD used among all six categories at 57.07 %, and it was followed by collocations at 21.93 %. The other four types constituted almost 20 % of the total LCD. By means of elaboration, synonyms represented 8.54 % and antonyms occupied 7.00 % of the LCD used. However, the lowest figures of LCD accounted for meronyms and hyponyms at 4.70 % and 1.20 % respectively. These findings were similar to those of other researchers (e.g., Castro, 2004a; Chen, 2008; Mojica, 2006; Zhang, 2010). Figure 1 also shows the distribution of LCD in grade nine L2 learners' essays.

Table 2. The overall frequency of LCD in L2 students' essay writing

Category	Repetition	Synonyms	Antonyms	Hyponyms	Meronyms	Collocations
Total number	5394	808	662	114	445	2073
Total %	% 57.07	% 8.54	% 7.00	% 1.20	% 4.70	% 21.93

A possible interpretation of these results revealed that learners encountered a difficulty understanding and employing several LCD in their essays, particularly hyponyms, meronyms, antonyms, and synonyms. Consequently, this was considered the main reason behind conducting the qualitative phase of the study using semi-structured interviews so that the researchers can obtain an in-depth understanding of what and why participants of the current study faced a challenge in terms of applying LCD in their writing. Besides, it adds to the validity and reliability of the quantitative results obtained using the descriptive and correlational statistics. These quantitative findings proved to be harmonious with a number of previous studies that reported repetition and collocation as the most dominant LCD (e.g., Chanyoo, 2018; Johnson, 1992; Moini & Kheirkhah, 2016; Xuefan,

2007). The following subsections give a detailed analysis of the six categories of LCD targeted in this study, and how they were identified in the participants' essays.
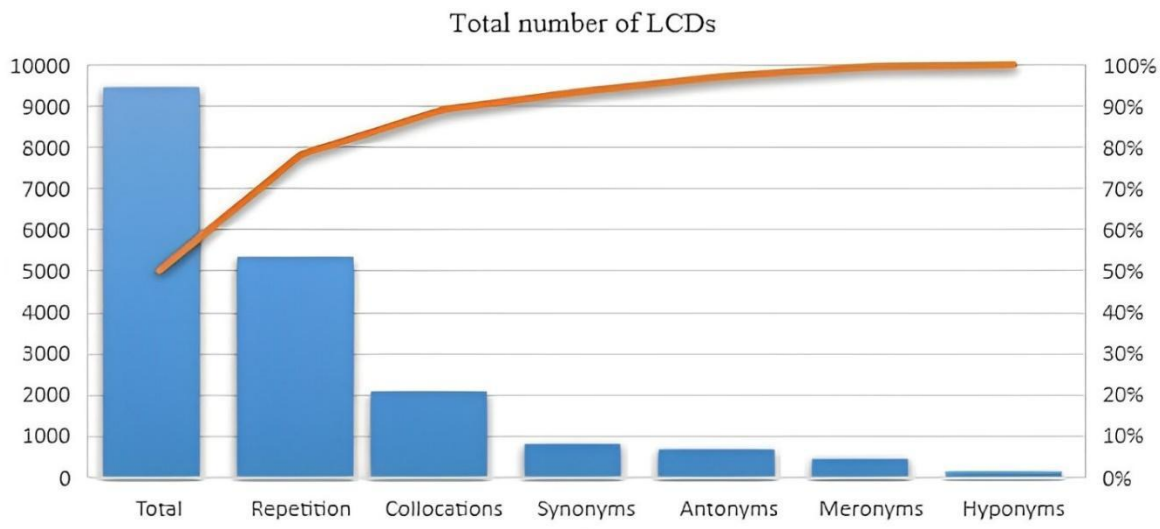

Figure 1. The distribution of overall frequency of LCD

Repetition

According to Table 3, repetition represented the most frequently occurring LCD in all learners' essays. The results also showed that the minimum number of repeated lexis was 29 and the maximum number was 165 words per essay. Example One shows repetition in one of the essays:

Being brave is not the absence of fear. Being brave is having that fear and finding a way through it. All people have fears, even though they might vary. No matter how frivolous the fear might look to you, it can still be horrific to some others. That is why fears have different forms and various ways they can be dealt with. (Student one)

Within these lines the student repeated "Being brave" twice, while the word "fear" was repeated five times. This reflected the dominance of repetition among grade nine L2 learners. Although, the participants were introduced to academic vocabulary of 50 words each semester, repetition reflected their limited amount of lexis as they preferred repeating words and phrases instead of using synonyms, antonyms, meronyms, and hyponyms to achieve coherence on the essay level. In this regard, Kafes (2012) averred that over-repetition of some lexis created a monotonous and an unpleasant tone such as over-repetition of the word "fear" in Example One above.

These results were also in line with the findings of Chaalal (2018) who confirmed the dominance of repetition in Arabic language and its equivalent translated English texts of some legal documents related to the United Nations (UN). Conversely, these results were in contradiction with those reached by Abdulrahman (2013) who stated that the overuse of certain CDs including repetition did not mean that students were better at using these devices to achieve cohesion; instead, this caused their writing to be more redundant and even hard to decipher. In the same context, Moini and Kheirkhah (2016) had similar findings to the present research since they identified repetition as the most dominant LCD while comparing two well-known children and adult novels in the field of literature.

Table 3. The frequency of repetition in participants' essays

Valid N	Missing N	Mean	Mode	Std. Deviation	Minimum	Maximum	Sum
56	0	95.5179	80.00a	31.87931	29	165	5349

Collocations

Table 4 shows that collocation was the second most frequently used LCD in learners' writing at a total number of (2073) collocated items in all essays. The minimum number of collocations used was nine, whereas the maximum number was 77 per essay. The mean was 37 and the mode was 34. Although it was the second dominant category of LCD, it was way too low compared to the frequency of occurrence of repetition. Example Two illustrates students' use of collocations in one of the essays:

Where have you gone, charming Billy? is a short story by Tim O'Brien which takes place during the Vietnam war……. sent out to Vietnam including the author…Tim O' Brien's main idea is facing fear in different ways and having courage to accomplish tasks that are given…..the soldier started to cry heavily…but in this story it focuses on something that is really important. (Student Two)

Example Two demonstrates how the participant used different chains of collocational items to achieve cohesion in the essay. He/ She used collocations of adjectives and nouns such as "short story," "main idea" and "different ways." Besides, the student used colocations of verbs and nouns such as "sent out to Vietnam" and "accomplish tasks." An example of collocations using verb and adverb was "cry heavily," and another example of collocation using adverb and adjective was "really important." Using these collocations, the participant created coherence on the essay level. According to Halliday and Hasan's (1976) model of cohesion, using collocations helps to achieve cohesion through the association of lexical items that regularly co-occur in similar environments and contexts. In addition, the frequent use of collocational chains confirmed learners' awareness of using collocations as LCD that helped to achieve cohesion in their writing. However, an analysis of the participants' essays showed that some types of collocations were more frequent than others including adjective-noun and verb-noun collocations. However, the least noticed type of collocational chains was the adverb–adjective collocation. These findings were harmonious with some previous studies including Johnson (1992) and Chanyoo (2018).

Table 4. The frequency of collocations in L2 learners' essays

Valid N	Missing N	Mean	Mode	Std. Deviation	Minimum	Maximum	Sum
56	0	37.0179	34	13.93555	9	77	2073

Synonyms

Table 5 revealed that the participants used a total number of 808 synonyms. Besides, the minimum number of synonyms identified in each essay was four, whereas the maximum number was 45. The average use of synonyms in all essays was nearly 14. The highest percentage of participants used between eight and 14 synonyms in each essay, which was very limited compared to the use of other LCD including repetitions and collocations. Example Three shows participants' use of synonyms in one of the essays.

The story also shows that in order to overcome fear; people must have the courage and determination to defeat their horrors. …. Since it was his first day at war, he was frightened and scared at the most……. Some readers did not approve of the closure of the story as it was incomplete or unfinished in terms of some ideas and thoughts. (Student three)

Example Three showed how the participant used synonyms in his/her essay in order to achieve cohesion. The participant used "defeat" as a synonym for the verb "overcome," "frightened" as a synonym for the adjective "scared," "unfinished" as a synonym for the adjective "incomplete" and "ideas" as a synonym for the noun "thoughts." This was a clear illustration of how synonyms can be used in writing to create cohesion and text unity instead of repetition that sometimes created a monotonous tone if it was misused. However, this was not the case with all participants as it was evident in the overall frequency of synonyms among all six LCD at % 8.54. The participants showed a limited ability to implement synonyms in their writing although they are exposed to a lot of academic vocabulary each semester. These findings were in consistency with those reached by Kafes (2012) in which participants used very few synonyms in their writing in English and Turkish as well. Similar to the present study findings, Kafes (2012) mentioned that the participants overused repetition to replace synonyms. Connor (1984) confirmed these findings as well by stating that synonyms were reported among the least frequent LCD in EFL students' writing.

Table 5. The frequency of synonyms in L2 learners' essays

Valid N	Missing N	Mean	Std. Deviation	Minimum	Maximum	Sum
56	0	14.4286	8.32926	4	45	808

Antonyms

Table 6 demonstrated that antonyms were the fourth most frequently used LCD among all six categories at 662 antonyms in total; therefore, they represented % 7.00 of the overall LCD. The minimum number of antonyms used was two, while the maximum number was 26 with an average of nearly 12 antonyms per essay. The majority of students used between eight and 10 antonyms per essay. This indicated how antonyms were less

frequently utilized by participants in their writing. Example Four illustrates how participants used antonyms in their essays.

The major theme of the story is that people must overcome their fears, and they need to have enough courage to do so……. The story has a number of strengths and weaknesses as well…. The short story is liked by many people, whereas it is sometimes being disliked by others for some reasons…. As written in the ending, Paul is stopped from histrically laughing and then continues the march with his platoon. (Student four)

 The excerpt in example Four revealed how antonyms were employed to show contrast and to create cohesion in the essays. Some verbs were used as antonyms such as "stopped" and "continued." Likewise, there were nouns used as antonyms including "fear – courage" and "strengths – weaknesses." Furthermore, "liked" and "disliked" were two adjectives used as antonyms. Overall, antonyms were used to introduce the strengths and weaknesses as part of the critical review essay writing. Besides, they were used to show contrast. These findings were confirmed by El-Gazzar (2006) who found that antonyms were the least commonly used LCD in learners' essays. Although the type of the analyzed essays differed from that of El-Gazzar's study, the present paper's essay was a critical review that included discussing the strengths and weaknesses of a literary work. Therefore, participants were expected to employ various antonyms that would serve the purpose of the writing task. Despite all this, the findings of the present paper and El-Gazzar's were harmonious as they were conducted mainly on Arab EFL learners. This might indicate that Arabic learners tended not to use many antonyms in their writing. This notion also harmonized with the findings of previous studies including Xuefan (2007), Yang and Sun (2012), and Crossley and McNamara (2016).

Table 6. The frequency of antonyms in L2 learners' essays

Valid N	Missing N	Mean	Std. Deviation	Minimum	Maximum	Sum
56	0	11.8214	5.08512	2	26	662

Hyponyms and Meronyms

As displayed in Table 7, hyponyms and meronyms were the least frequently used LCD in students' writing; therefore, they were discussed and analyzed together. A minimal number of hyponyms was used in all essays (114) compared to (445) meronyms. However, both types were similar in that some participants did not use any examples of meronyms and hyponyms. The maximum number of meronyms used was 20 per essay, whereas it was only eight for hyponyms. This showed how they were less frequently employed in students' writing. One student wrote, "The author presented a strong use of some story elements including the plot, characters, conflict, and setting…. And the main character types are static, round, and dynamic."

The student used the words; "plot," "characters," "conflict" and "setting" as meronyms or parts of the (whole) "story elements." It was evident that these elements were part of the story components; thus, they were identified as meronyms. However, the words; "static," "round," and "dynamic" are three-character types that are known in literature. Therefore, they are classifications or specific words to the more general word "character types". In this aspect, "character types" is called the superordinate, whereas the words "static, dynamic and round" are the subtypes or the subordinates. These results were in line with those stated by Neuner (1987), Liu and Braine (2005), and Zhang (2010) in which learners relied only slightly on meronyms and hyponyms to create cohesion. By the same token, the limited use of hyponymy and meronyms as identified in the writings of EFL learners, particularly Arab students confirmed Odlin's (1997) findings that L2 learners with a limited amount of lexis tended to use repetition a great deal more than all the other lexical types to interact with readers and create text cohesion.

Table 7. The frequency of hyponyms and meronyms in L2 learners' essays

Category	Valid Numbers	Missing Numbers	Mean	Median	Minimum	Maximum	Sum
Hyponyms	56	0	2.0357	2.0000	.00	8	114
Meronyms	56	0	7.9464	6.0000	.00	20	445

RQ2: What is the Overall Correlation Between the Total Number of Lexical Cohesive Devices Used and the Writing Quality of Grade Nine L2 Learners?

The second research question examined the correlation between the total number of LCD used and L2 learners' mark as an indication of their writing quality using quantitative correlational statistics. Therefore, the researchers

implemented the Pearson Correlation Coefficient tool in order to identify the correlation between these two variables as well as their degree of association. Table 8 provides a summary of the results obtained from the Pearson Correlation Coefficient tool of analysis.

Table 8. The correlation between the total number of LCD and L2 learners' marks

		Learners' marks	Total number of LCD
Learners' Mark	Pearson correlation	1	.330*
	Sig. (2-tailed)		.013
	N	56	56
Total N of LCD	Pearson correlation	.330*	1
	Sig. (2-tailed)	.013	
	N	56	56
* Correlation is significant at the 0.05 level (2-tailed)			

It was observed in Table 8 that the Pearson Correlation Coefficient was r = 0.330, which showed a positive correlation between the total number of LCD used and L2 learners' marks. However, the degree of association between these two variables was evidently moderate since it fell between 0.3 and 0.49 as per the Pearson Correlation Coefficient criteria. Additionally, the 2-tailed significance value was p = 0.013, which meant that correlation was highly significant since the standard alpha value is 0.05. This maintained the validity and reliability of the obtained findings rather than being a random or unintentional coincidence. By way of elaboration, the data illustrated that the number of LCD used affected the writing quality positively as represented by the learners' marks. For instance, students who used a huge number of LCD scored quite a high mark in their essay writing, whereas those who employed fewer LCD obtained a low mark. As an illustration, Table 9 provides some examples of how the writing quality of grade nine L2 learners correlated positively with the total number of LCD utilized.

Table 9. The correlation between the total number of LCD and L2 learners' marks

Participant ID	Total number of LCD	Learners' mark
1	296	10
22	227	10
34	216	9.5
38	105	6.5
24	154	6

RQ3: What are the Difficulties that Grade Nine L2 Learners Encountered in Dealing with Lexical Cohesion in Writing from the Perspectives of both Teachers and Learners?

The analysis of the semi-structured interviews of both learners and instructors resulted in three main themes related to the challenges which the learners encountered regarding employing LCD in their essay writing. These themes were provided under the following areas: (1) lack of awareness and instruction, (2) decontextualization of cohesive devices, and (3) feedback and correction.

Lack of Awareness and Instruction

Lack of awareness and instruction emerged as a main theme from analyzing the learners' semi-structured interview data. To elaborate, the analysis of the semi-structured interviews revealed that some participants did not have full awareness of all cohesive devices under investigation (N=4). However, the majority of participants (N=11) demonstrated a thorough awareness of all LCD, particularly synonyms, repetition, antonyms, and collocations. One participant with a high proficiency level responded by saying, "I am aware of all of these devices, particularly repetition, synonyms, antonyms and collocations." When the participant asked about the last two LCD, the researcher re-explained them to him. Hence, the student responded by saying, "We study these

devices when we learn about vocabulary and analogies, but we have them in different terms such as classifications (C) and part and whole relationships (PW) instead of hyponyms and meronyms."

As a follow-up question, the researcher asked where from they got this information about LCD. Almost all participants confirmed that they learned about them at school. Participants were then asked how teachers taught them LCD and how this was linked to the writing process. Several participants (N=12) stated that they studied these devices as part of their vocabulary learning. They always did the vocabulary template including word definition, synonyms, antonyms, derivatives, and example sentences. However, they were introduced to meronyms and hyponyms as part of learning analogies. However, few participants (N=3) mentioned that they were introduced to these devices before each academic writing task.

Decontextualization of Cohesive Devices

The second essential theme that was derived from the analysis of learners' semi-structured interview data was related to decontextualization of CDs. To explain this further, participants were asked about obstacles they encountered with regard to using LCD in their writing. Their responses varied as almost one third of them (N=6) reported that they used to study these devices separately in the context of vocabulary rather than writing. Some participants (N=4) mentioned that they used to repeat words and phrases more than once to make their ideas clear, but it ended up sounding boring and monotonous for readers. Few participants (N=3), however, had a difficulty with timing when they had to think of synonyms and antonyms to include in their writing. The lowest number of participants (N=2) encountered an obstacle with the effort it took them to think of synonyms and antonyms in L2, which they were not good at.

Participants were also asked about their opinion of the effects of utilizing LCD on the quality of their writing. One participant of the high proficiency level (N=1) stated that he always tried to include as many LCD as he could to have variety of vocabulary and avoid repetition. However, most participants (N=7) reported that using LCD affected the writing quality positively. The following is a quote of one of the participants in this regard, "Of course, including LCD was a good thing; however, I sometimes do not know if they are used correctly or no because the teacher does not focus on giving detailed feedback on them." Besides, few participants (N=4) reported that using LCD would make the writing clearer and more interesting for readers; yet, they had a difficulty implementing them into writing due to the insufficient practice they received. Only three participants (N=3) stated that they would make paragraphs fit better together; yet they were unable to refer to that as coherence or cohesion in writing. One participant said, "This would make paragraphs go well together as one chain. It would also make it more organized and clearer."

Feedback and Correction

A significant theme that was derived from analyzing the instructors' semi-structured interview data emphasized issues of feedback and correction. To elaborate on this, participants were asked if they taught LCD at school and how they did so. Two participants (N=2) concurred that they taught LCD as part of teaching writing. One participant said, "I teach LCD such as synonyms, antonyms, and repetition in academic and creative writing. Synonyms help students to provide a variety of word choice so that readers stay focused." Another participant mentioned that she taught LCD as part of teaching reading in which she chose one type of CDs and addressed it throughout the text. The fourth participant said, "I taught CDs as part of the techniques I followed while students are writing their first draft by addressing the issue of repetition and replacing repeated words with synonyms and antonyms." Participants were also asked whether it was effective to teach LCD in context or separate. All participants (N=4) agreed on teaching LCD in context for various reasons including "the ability to apply them in context rather than just give students the knowledge needed." Also, "teaching LCD in context was easier and it helped learners to get to know these devices accidentally and naturally."

Participants were then questioned on their experiences with the challenges faced by grade nine L2 learners in dealing with LCD. Although the challenges identified were based on the participants' experiences, the researchers enhanced the qualitative analysis with descriptive statistics only to support the qualitative findings. To elaborate this further, the majority of them (N=3) agreed that lack of lexical awareness, insufficient amount of teachers' feedback and the limited use of cohesive ties were the most challenging difficulties for them. They also reported that learners' L1, which is Arabic caused them to overuse repetition and underuse other LCD such as meronyms and hyponyms in their L2, which is English. Furthermore, one of the questions addressed the grading criteria for LCD in learners' writing. All teachers (N=4) concurred that it was a must to include a criterion that would be the reference to correcting and grading the use of LCD in writing.

Discussion

The study investigated the use of LCD in academic writing essays of grade nine L2 learners. The findings of the study added more controversy to the notion of whether or not cohesive density correlated with the quality of writing. By means of elaboration, no single study identified a dependable response that would apply to a wider spectrum of learners of other languages including the present study for some possible factors. Firstly, L1 interference with L2 was clearly apparent in Arabic learners of English as stated by Ahmed (2010) and Khalil

(1989). Secondly, the majority of previous studies focused on the quantity of CDs regardless of their quality (Hellalet, 2013). Their purpose was to calculate the total number of CDs regardless if they were used correctly or improperly. Moreover, using correlational statistics provided various degrees of correlation between the number of LCD and the quality of writing, starting from low to very strong correlation which indicated multiple interpretations of collected data. Additionally, there are various essay genres, which made it difficult to link the findings of each study to specific essay types.

In a large part, the qualitative findings using semi-structured interviews with learners and instructors confirmed the difficulties that grade nine L2 learners faced with LCD. Specifically, the dominance of repetition, which was reported by the quantitative findings and was confirmed by interviewing participants, supported the notion that EFL learners, basically Arabs, had a difficulty related to L1 interference with L2 (Ahmed, 2010; Khalil, 1989). Arab learners think that because these devices help them to achieve coherence in their L1 essays, they can also use them to achieve coherence in their L2 essay writing (Bacha, 2002). The qualitative findings also gave an in-depth understanding of why certain lexical ties were more dominant including repetition and collocations. Participants were less familiar with some ties such as meronyms and hyponyms although they were introduced to them as part of their ELA coaching at school. This clearly explained why these two LCD were the least commonly used in students' writing. In addition, analyzing the instructors' semi-structured interviews confirmed that lack of lexical awareness and teacher feedback, the limited use of CDs in learners' essays, and L1 interference with L2 were among the most problematic areas encountered by grade nine L2 learners.

Conclusion and Implications

The findings of the study showed that repetition and collocations were the most frequently used LCD, and repetition was far more frequent than all other categories. Conversely, synonyms, antonyms, hyponyms, and meronyms were the least frequent LCD in participants' essays, and the lowest frequencies were identified with hyponyms and meronyms. The study also concluded that there was a moderate positive correlation between the number of LCD and the writing quality. This result was considered important since most previous studies did not have a similar degree of association between the number of LCD and the writing quality. Another significant result of the study was the difficulties encountered by participants while using LCD in their writing. These included L1 (Arabic) interference with L2 (English) as it was reflected in the overuse of repetition. Lack of support from English teachers was another main challenge encountered by grade nine L2 learners. An additional challenge that participants faced was lack of proper feedback on how to utilize LCD effectively in participants' essay writing. Furthermore, the qualitative findings were consistent with the quantitative results and they reflected thoroughly why participants faced these obstacles.

All things considered, the present study houses valuable implications at the theoretical and the practical levels. Theoretically, the LCD used in the students' essays cover the categories described in Halliday and Hasan's (1976) model in a clear way. The categories of repetition, synonymy, antonymy, hyponymy, meronymy and collocation were reflected in the participants' essays, which comes as a validation of the theoretical underpinning of the present study and of other similar studies (e.g., Abu-Ayyash, 2020; Chanyoo, 2018). On the practical side, one implication is that LCDs need to be further operationalized in EFL classrooms by teaching them in writing lessons, not as discrete units in vocabulary and analogy practices as indicated by the participating learners. Another implication relates to the underused devices, which are meronymy and hyponymy. These two LCD are important tools in lexical ties (Halliday & Hasan, 1976) and, therefore, should be emphasized in the writing classroom. In fact, this opens an opportunity for researchers so that they can look at whether or not the findings about meronymy and hyponymy in this paper are held in other contexts, and, if so, what the reasons are.

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