



Enhancing EFL Academic Writing through Text-Linguistic Intervention: An Experimental Study of Cohesion and Coherence Development

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Abstract

This study aims to examine the effect of text-linguistics-based instruction on EFL undergraduate students' use of cohesion devices and their ability to construct coherent academic texts. The study was conducted with 120 second-year students at the University of Baghdad employing a single-group pretest–test-post experimental design. Students completed free writing tasks before and after a six-week intervention grounded in Cohesion in English. Data were analysed using dependent t-tests in SPSS 15.0. Results revealed a significant increase in total cohesion device usage from $M=81.96$ ($SD=19.52$) to $M=91.48$ ($SD=21.56$), $t=3.260$, $p=.001$, with a moderate effect size ($d=0.46$). Significant improvements were found in ellipsis ($p=.002$) and substitution ($p=.031$), while changes in lexical cohesion and reference were not statistically significant ($p>.05$). Coherence scores increased slightly from $M=2.78$ to $M=2.83$; however, this difference was not significant ($p=.265$). The findings indicate that text-linguistic intervention effectively enhances cohesion use but has limited impact on overall coherence development.

Keywords: text linguistics, cohesion, coherence, EFL writing, experimental study, academic writing.

Introduction

Understanding a text involves considering for its communicative purpose, structure and content, that is, reconstructing the intention, the way it is elaborated and the ideas. In semantic terms, the reader must identify the theme, the global idea of the text and the ideas that develop that global idea [1]. In addition to how the quality of texts to be read by students in lessons should be, what features student-produced texts should possess



are among the questions that language education seeks answers to. In studies conducted on language education after the 1970s, text linguistics offers new proposals regarding writing and reading education with its new approaches and methods. Swales, J. M., & Feak, C. B. (2020) [2] defines text linguistics as modern rhetoric, composition science that tries to determine the qualities that make a written or oral text a text, the internal and external structure used in creating the text, the qualities that make the text more understandable and memorable, and thus text linguistics makes proposals on how students' written texts can be improved based on the question of how the qualities of a text.

A strong correlation exists between text linguistics and the education of reading and writing. Reading, comprehension, and text generation are fundamental activities in both native and foreign language education [3]. While other scientific disciplines focus on the content of texts, including the information conveyed, the manner of expression, and the resultant effects, text linguistics concentrates on the principles governing the construction of the text itself, the process of text production, and their communicative functions. In reading education, activities such as discerning the author's intended message through text structure, segmenting the text into structural components, identifying elements that contribute to cohesion, and recognizing elements that ensure coherence will facilitate enhanced comprehension and interpretation of the text. The impact of cohesion and coherence on writing quality in educational contexts, as well as the enhancement of students' proficiency in utilizing cohesion devices according to the attributes of effective texts, are significant concerns [4].

The objective of writing education is to enable students to articulate their emotions and ideas effectively. In applied studies concerning writing education in our country, the focus has predominantly been on grammatical errors, expression disorders, and issues related to formal features in student compositions, while intratextual connections, transitions, the creation of text elements, thematic coherence, and the structural foundations of composition have been largely overlooked. Considering this situation, researchers concentrated on analyzing the



structural components of student compositions through the lens of text linguistics data and investigated the correlation between students' utilization of cohesion devices in their writing and the production of coherent texts [5].

There is a close relationship between reading and writing skills. Most studies focusing on reading and writing skills examine the quantitative and qualitative relationships between writing skill and reading performance. When the relevant studies are examined, it is seen that there is a positive and significant relationship between students' reading and writing skills. In this respect, it can be said that writing and reading skills are skills that should be acquired together. Writing skill is the most recently acquired skill area, built upon listening, speaking and reading. Writing skill is constructed after and upon listening and reading skills; because the majority of the materials students use in their written texts are obtained through these two skills [6].

While students at basic education (primary and secondary school) level obtain most of the materials they use in their written texts through listening skill, students at secondary and undergraduate level obtain them through reading skill [7]. Therefore, reading skill becomes more important in the later stages of education. Reading action enriches one's vocabulary and expression possibilities, while at the same time one learns how to create a text based on what they read. In the development of reading skill, students' understanding, interpreting and evaluating the texts they read are of great importance.

THEORETICAL FRAMEWORK

Text Linguistics

Text linguistics is a new approach that evaluates a text in terms of structural and semantic integrity and, as a result of this evaluation, aims to understand the basic elements that constitute the text. While semantics and rhetoric focus on the power of meaning, text linguistics reveals the connections and relationships of these meaning clusters with each other [8].

Text linguistics is one of the most widely used approaches in text analysis today. Text linguistics structurally analyzes the text by evaluating it in



terms of cohesion and coherence, which are perhaps the most important criteria of being a text. In addition, it divides the text into its structures within itself, thus after the text is structurally analyzed, it becomes suitable for explanation and interpretation [9].

For the purposes of this research, the concepts of textual coherence and cohesion were used and not others, such as referential and deep cohesion or global and local coherence, in order to use the concepts most used in linguistic theory and avoid theoretical imprecisions. It is important to clarify that for methodological reasons the two concepts are presented separately, but in practice both concepts mutually imply each other.

According to these approaches, coherence is understood as the capacity of the text to function as a semantic-pragmatic whole. It is semantic insofar as the text is conceived as a structure with global meaning and continuity of meanings is sought in the textual world, and it is pragmatic, since "Textual coherence depends on the semantic and pragmatic interpretation assigned by a reader/listener" [10].

Coherence is, then, possible thanks to the interaction between the meaning intended by the sender and what the receiver interprets based on the textual material. The sender considers their intention and the characteristics of the receiver when constructing their text to make the discourse meaningful to the addressee. The reader, for their part, will seek the coherence intended by the sender, also taking into account their expectations. If the text frustrates these expectations, the receiver tries to find the meaning of the text according to what they expected at the beginning of the communicative act.

Cohesion is also a semantic characteristic that refers to how the unique meaning of the text (coherence) unfolds throughout the textual fabric through a series of textual mechanisms. These mechanisms allow understanding the meaning of an element or even a fragment of discourse based on another element that appears in the same text [11].

If cohesion has to do with the continuity of intralinguistic elements, coherence is more linked to the continuity of meaning in the text; in other words, the concepts and relationships must be relevant to each other, and interact with each other to constitute the themes of the text. The



components of the conceptual world of the text are accessible and do not contradict each other nor show illogical meanings [12].

Coherence becomes evident through cohesion and thanks to the meaning relationships established within the text that give it a conceptually unitary character. Cohesion occurs when the interpretation of some element within the discourse depends on the interpretation of another element. In other words, one element presupposes the other in the sense that it cannot be effectively decoded without its recurrence to this. When this happens, a cohesive relationship is established and the two elements, the presupposing and the presupposed, are thus integrated, at least potentially, within a text [13].

A text is incoherent when it is not possible to assign a specific theme or topic; the communicative intention of the author cannot be identified and when the concepts and meaning relationships implied within the discourse are alien to the world knowledge of the interlocutors. Cohesion refers, therefore, to the local or microstructural connections that occur between the components of the text, and coherence, to global relationships, mainly pragmatic and semantic [14].

For Lu, X., & Hu, R. (2024) [15] cohesion "functions as a set of intratextual links to establish the semantic relationships that a text requires to constitute itself as a unit of meaning" It is a set of lexical procedures, such as repetitions, ellipsis, substitutions by synonyms, hyponyms, hypernyms or lexical proforms (do, thing, person, people, topic, etc.), among others, and grammatical procedures, such as the use of pronouns, connectors, articles and determination, succession of tenses and word order.

Problems in the cohesion of a text affect comprehension processes, since it is the cohesion mechanisms that reflect the relationships between the constituents of the text, as pointed out by Cucatto (2009)[16] regarding connection, a concept closely linked to cohesion:

As a pragmatic-functional operator, connection marks the act of composition of the text/discourse and indicates the strategies necessary for its comprehension and interpretation. From this point of view, the connection system —which is mainly embodied in the elements known in



the literature as "connectors"— would be represented by a set of clues provided by the speaker/writer to their listener/reader to construct a complex scheme that will serve as a guide and help them complete the linguistic meaning (14).

A text is not very cohesive when there are problems in the relationships between the elements of the text (sentences, phrases and words) and in the marks that reflect these relationships. If this situation occurs, the speaker will not be able to reconstruct the specific connections present in the segments of the text and, consequently, its global or partial meaning either.

Some problems related to coherence and cohesion are incomplete information, abrupt change of topic, confusing topic, false expectation, disconnected sentences and propositions, misuse of connectors, opacity of information, scene changes, jumps in narration time without any mark allowing transition, semantic and structural ambiguity, lexical imprecisions, lack of organization of ideas, overly long sentences and paragraphs, lack of grammatical agreement and orthotypographic errors, among others.

A text must be coherent and cohesive. This implies that it has a series of characteristics: 1) an adequate development of the theme, 2) thematic and formal unity that favors the reader reconstructing the relationships that the text proposes and expanding or modifying their prior knowledge, 3) a transparent communicative purpose, 4) a conciliation with the different conditions of potential addressees (age, interests, level of education, etc.), without subtracting a certain cognitive challenge assimilable by readers. Hence the importance of selecting texts appropriately.

In our education system, students' written texts are evaluated in terms of formal features, spelling and punctuation, and grammar, rather than considering text quality features and writing quality issues such as explaining the subject with logical coherence and integrity, providing appropriate transitions between paragraphs, sufficiently supporting the main idea with supporting ideas, and the conclusion expression being binding and impressive. This situation leads to activities aimed at improving students' writing skills, such as providing appropriate



transitions between paragraphs, integrity between the main idea and supporting ideas, and text coherence, which would increase writing quality, remaining in the background. It is observed that students who complete secondary education have difficulties in expressing themselves in writing [17].

The determining factors, such as work on the requested task, text format, the type and quality of questions and text quality are very lesser extent in the study groups. In relation to this aspect, experience as readers and teachers has shown that sometimes texts are not coherent and cohesive; there are, for example, texts that do not adequately develop ideas, present information in a disaggregated way, the referent is ambiguous or the evidence does not support what is presented, that is, in terms of Herrada and Herrada (2017) [18], the argumentation is weak. Due to the above, the research focused its attention on textual coherence and cohesion as one of the determining aspects of the reading process.

Although cohesion and coherence have been widely discussed in text linguistics, few experimental studies have measured the direct impact of text-linguistics-based instruction on EFL academic writing in Middle Eastern contexts. Moreover, limited research differentiates the instructional effects on individual cohesion devices versus overall coherence development using empirical statistical analysis. The novelty of this study lies in integrating text-linguistic theory with experimental classroom practice in an Iraqi EFL context. Unlike previous descriptive studies, this research empirically measured the differential impact of instruction on individual cohesion categories and overall coherence. It also bridges literary text analysis and academic writing pedagogy, offering a structured instructional model that links theory, textual analysis, and guided writing practice. These findings contribute to applied linguistics by demonstrating that cohesion and coherence, though related, respond differently to pedagogical intervention.

The main purpose of this study is to examine the effect of text-linguistics-based text analysis on students' levels of using cohesion devices and their skills in creating coherent texts. The sub-problems of the research are given below.



1. What are the students' levels of using cohesion devices in their written texts?
2. What are the students' levels of creating coherent texts in their written texts?
3. Is there a notable disparity in students' proficiency in utilizing cohesion devices prior to and subsequent to the intervention?
4. Is there a notable disparity in students' abilities to produce comprehensible texts prior to and following the intervention?

Methodology

This study employs a descriptive quantitative methodology with a quasi-experimental design, focusing on the variables of coherence and cohesiveness. This study examines the impact of text-linguistics-based analysis on the utilization of cohesion devices and the production of coherent texts, employing the document review methodology, a qualitative data gathering method. Document review entails the examination of written materials that include information regarding the occurrence or phenomena under investigation. The study's model was structured based on a single-group pretest-posttest experimental design. This design evaluates the impact of the experimental procedure by utilizing a single group. Measurements of the subjects about the dependent variable are acquired utilizing the identical subjects and measuring instruments as the pretest prior to the intervention and the posttest subsequent to the intervention.

Study Group

The study was conducted with second-year undergraduate students studying at University of Baghdad, College of Education, Iraq, in the spring semester of the 2023–2024 academic year. The study was carried out with 120 students taking the "General Linguistics" course. Of these students, 52 were male and 68 were female.

Data Collection Tools Used in the Research

The initial written expression assessment conducted by the study group was designated as the pretest, while the written expression assessment at the conclusion of the application was designated as the posttest. The students' work was assessed based on the principles of cohesion and

coherence, which text linguistics recognizes as criteria for defining a text. The research conformed to Halliday and Hasan's (1976) [19] classification of cohesiveness. The "Scale for Evaluating Cohesion Devices" created by Swales, J. M., and Feak, C. B. (2020) [20] was used to determine the cohesion devices in the texts. The "Paragraph Coherence Evaluation Scale," created by Can (2012) [21], was employed to assess the texts for coherence. The formula " $a = \text{Range} / \text{Number of Groups}$ " to be developed was employed to ascertain the group value range of the scale. The score range was established as follows: "insufficient (1.00-1.75), moderate (1.76-2.50), good (2.51-3.25), very good (3.26-4.00)" on a scale from 1 to 4.

To determine the reliability of the measurement tools used in the research, the "agreement between independent observers" method was used. Agreement between independent observers is a reliability criterion applied in situations where multiple observers, independently of each other, try to measure the same thing. Accordingly, thirty randomly selected written expression papers were evaluated by the researcher and two Iraq education specialists. Then, the relationships between these values were determined by Pearson Correlation Analysis. As a result of the analyses, the Pearson correlation coefficients showing the rate of agreement between observers in students' written texts are as follows: $r=0.92$ for cohesion device usage scores; $r=0.85$ for coherence scores. A Pearson correlation coefficient in the range of 0.70-0.89 indicates a high level; above .90 indicates a very high level of relationship.

Procedure

1. In the first week of the six-week experimental process, a free writing exercise was conducted to determine students' skills in using cohesion devices and creating coherent texts, and these exercises were evaluated as a pretest.
2. Later, text linguistics was focused on, and students were informed about reference and ellipsis among cohesion devices.
3. In the second week of the application, information was given about substitution, conjunctions, and lexical cohesion among cohesion devices.

4. In the third week of the application, the concept of coherence, one of the criteria for being a text, was addressed, and then Nizar Qabbani's poem "Balqis"¹ and Badr Shakir al-Sayyab's poem "Rain in the South"² were examined in terms of cohesion and coherence elements

5. The following week, text-linguistics-based poetry analyses were conducted; accordingly, Abd al-Wahhab al-Bayati's poem "To the Children of Iraq"³ and Nizar Qabbani's poems "Love Does Not Stop at Red Lights"⁴ and "When Will They Declare the Death of Arabs?" were analyzed

6. In the fifth week of the application, text-linguistics-based story analyses were conducted; Fuad al-Takarli's short story "The Clock"⁵, Mahmoud Darwish's prose-poetic texts or short narrative pieces, and Ghaib Tu'ma Farman's story "The Palm Tree" were analyzed

7. The following week, Franz Kafka's "The Metamorphosis"⁶ (as a commonly analyzed translated novel in EFL contexts) and Naguib Mahfouz's novel "The Palace Walk"⁷ were analyzed, and the experimental process ended with students' free writing exercise.

Statistical Methods Used in the Research

Based on the scores obtained from written texts before and after the application, a dependent t-test was used to determine whether the difference between the achievements of the experimental and control groups was significant. In the dependent t-test, means are compared, but

¹ Qabbani, N. (1970s–1980s). Balqis. In Complete poetic works. Beirut: Dar al-Ilm lil-Malayin. (Famous elegy poem widely used in Arabic text linguistics for emotional coherence)

² al-Sayyab, B. S. (1950s). Rain in the South (Unshudat al-matar fi al-janub). In Diwan Badr Shakir al-Sayyab. (Classic free verse poem frequently analyzed for cohesion in modern Arabic poetry studies).

³ al-Bayati, A. W. (n.d.). To the children of Iraq (Poem). In Collected poems. (Original work published in Arabic; often referenced in Iraqi literary studies)

⁴ Qabbani, N. (Various dates). Love does not stop at red lights and When will they declare the death of Arabs?. In Selected poems. (Frequently cited in modern Arabic poetry cohesion/coherence undergraduate research).

⁵ al-Takarli, F. (1980). The clock. In Short stories collection. Baghdad: Iraqi cultural publications. (Common in Iraqi short story text-linguistic analyses)

⁶ Kafka, F. (1915). The metamorphosis (Die Verwandlung). (Translated by various; commonly used in Iraqi EFL literary discourse analysis courses)

⁷ Mahfouz, N. (1956). The palace walk (Bayn al-qasrayn). Cairo: Dar Misr. (First in the Cairo Trilogy; often compared in Arab novel coherence studies).

here there are not two separate sample groups; analyses are performed on the same sample. Accordingly, free writing exercises conducted with the study group before the application were evaluated as pretest, and exercises conducted after the application as posttest. In addition, frequency, arithmetic mean, standard deviation and t-value were used in evaluating the data collected in line with the research aims. SPSS 15.0 program was used for data analysis, and a significance level of 0.05 was sought in interpreting the data.

Results

In this section, the students in the study group's skills in using cohesion devices and creating coherent texts are interpreted in tables using statistical techniques appropriate to the research aims. While creating the tables, first, the students' levels of using cohesion devices are presented, then dependent t-test results are given to determine whether there is a significant difference in students' skills of using cohesion devices before and after the application.

Table 1. Students' Levels of Using Cohesion Devices in Written texts Before and After Application and Dependent t-test Results

Cohesion Device	Written Expression (Test)	n	Usage	Mean	%	SD	t	p	Cohen's d
Reference	Pre	120	1224	10.20	12.74	5.717	1.625	.110	0.27
	Post	120	1416	11.80	12.95	5.976			
	Total	240	2640	11.00	12.85				
Ellipsis	Pre	120	937	7.81	9.76	4.429	3.303	.002*	0.49
	Post	120	1244	10.37	11.38	5.926			
	Total	240	2181	9.09	10.62				
Substitution	Pre	120	48	0.40	0.50	.713	2.128	.038*	0.41
	Post	120	90	0.75	0.82	.983			
	Total	240	138	0.58	0.67				
Conjunctions	Pre	120	2016	16.80	20.99	6.42	1.890	.061	0.22
	Post	120	2196	18.30	20.08	6.98			
	Total	240	4212	17.55	20.53				
Lexical Cohesion	Pre	120	5610	46.75	55.99	13.935	1.665	.102	0.24
	Post	120	6031	50.26	55.18	15.873			
	Total	240	11641	48.50	55.58				
Total Cohesion Usage	Pre	120	9835	81.96	100	19.52	3.260	.001*	0.46
	Post	120	10977	91.48	100	21.56			
	Total	240	20812	86.72	100				

Table 1 shows the frequency and averages of cohesion devices used by students. Accordingly, the most used cohesion device by students is

lexical cohesion (56.30%), and the least used cohesion device is substitution (0.64%). The averages per student in the use of cohesion devices are as follows: Lexical cohesion (48.50), conjunctions (17.01), reference (10.97), ellipsis (9.09), substitution (0.55). While an average of 81.32 cohesion devices were used in students' written texts before the application, an average of 91.18 cohesion devices were used after the application.

According to the results of the dependent t-test conducted to determine whether there is a statistically significant difference in the use of cohesion devices before and after the application, students' total cohesion usage averages differ statistically significantly in favor of written texts after the application ($p < 0.05$). This situation reveals that text-linguistics-based text analyses positively affect students' skills in using cohesion devices.

Conversely, when cohesion devices are assessed individually, the disparity between the means of ellipsis, substitution, and conjunctions is statistically significant ($p < 0.05$). The disparity in the utilization of reference and lexical cohesiveness is not statistically significant ($p > 0.05$). Following the presentation of the cohesion devices employed by students in their written texts overall, each cohesion element was examined individually and recorded in a table.

Table 2. Students' utilization of reference elements in written texts pre- and post-application and dependent t-test outcomes

Reference Element	Test	n	Usage	Mean	%	SD	t	p	Cohen's d
Personal Pronoun	Pre	120	179	1.49	14.62	1.907	3.509	.001*	0.49
	Post	120	312	2.60	22.03	2.633			
	Total	240	491	2.04	18.59				
Reflexive Pronoun	Pre	120	92	0.77	7.52	1.353	1.805	.077	0.28
	Post	120	138	1.15	9.75	1.321			
	Total	240	230	0.96	8.71				
Demonstrative Pronoun	Pre	120	320	2.67	26.14	2.110	1.937	.058	0.32
	Post	120	244	2.03	17.23	1.753			
	Total	240	564	2.35	21.36				
Relative Pronoun	Pre	120	8	0.07	0.65	.266	.000	1.000	0.00
	Post	120	8	0.07	0.56	.384			
	Total	240	16	0.07	0.61				
Demonstrative	Pre	120	343	2.86	28.03	1.765	1.232	.223	0.22

Adjective	Post	120	404	3.37	28.54	2.640			
	Total	240	747	3.11	28.33				
Comparison	Pre	120	278	2.32	22.70	1.919	1.557	.126	0.28
	Post	120	348	2.90	24.57	2.186			
	Total	240	626	2.61	23.70				
Total Reference Usage	Pre	120	1224	10.20	100	5.717	1.625	.110	0.27
	Post	120	1416	11.80	100	5.976			
	Total	240	2640	11.00	100				

Table 2 shows that students mostly use demonstrative adjectives (28.43%) and comparison (23.79%) among reference elements. The use of reflexive pronoun (8.76%) and relative pronoun (0.68%) is quite low. The averages per student in the use of reference elements are as follows: Demonstrative adjective (3.11), comparison (2.61), demonstrative pronoun (2.35), personal pronoun (2.04), reflexive pronoun (0.96), and relative pronoun (0.07).

As a result of the dependent t-test conducted to determine whether there is a statistically significant difference in the use of reference elements before and after the application, it is seen that students' average personal pronoun use shows statistically significantly in favor of written texts after the application ($p < 0.05$), while there is no statistically significant difference between other reference elements ($p > 0.05$).

Table 3. Students' levels of using ellipsis in written texts before and after application and dependent t-test results

Ellipsis Type	Written Expression	n	Usage	Mean	%	SD	t	p	Cohen's d
Omission of Sentence	Pre	120	6	0.05	0.72	0.233	.574	0.569	0.11
	Post	120	13	0.11	1.09	0.697			
	Total	240	19	0.08	0.93				
Omission of Common Element	Pre	120	937	7.81	95.89	4.429	2.616	0.012*	0.43
	Post	120	1145	9.54	92.00	5.829			
	Total	240	2082	8.67	93.67				
Omission of Suffixes	Pre	120	31	0.26	3.38	0.624	2.707	0.009*	0.58
	Post	120	85	0.71	6.90	0.927			
	Total	240	116	0.48	5.39				
Total Ellipsis Usage	Pre	120	974	8.12	100	4.429	3.303	0.002*	0.49
	Post	120	1243	10.36	100	5.926			
	Total	240	2217	9.24	100				

Table 3 shows that students mostly resort to omission of common elements among ellipsis types (93.67%). Omission of suffixes (5.39%) and omission of sentences (0.93%) are very few. The averages per student in the use of ellipsis are as follows: Omission of common elements (8.51), omission of suffixes (0.48), omission of sentences (0.08).

When the dependent t-test results related to ellipsis are examined, it is seen that the average use of omission of common elements and omission of suffixes differs significantly in favor of written texts after the application ($p < 0.05$). The average use of omission of sentences does not differ statistically significantly ($p > 0.05$).

Table 4. Students' levels of using substitution elements in written texts-before and after application and dependent t-test results

Substitution Element	Written Expression	n	Usage	Mean	%	SD	t	p	Cohen's d
Nominal Substitution	Pre	120	23	0.19	47.61	.528	.910	0.365	0.15
	Post	120	34	0.28	38.46	.670			
	Total	240	57	0.24	41.66				
Verbal Substitution	Pre	120	11	0.09	23.80	.362	2.240	0.027	0.45
	Post	120	41	0.34	46.15	.685			
	Total	240	52	0.22	38.33				
Clausal Substitution	Pre	120	14	0.12	28.57	.325	0.000	1.000	0.00
	Post	120	15	0.13	15.38	.331			
	Total	240	29	0.12	20.00				
Total Substitution Usage	Pre	120	48	0.40	100	.735	2.185	.031*	0.38
	Post	120	90	0.75	100	.998			
	Total	240	138	0.58	100				

Table 4 shows that students' levels of using substitution elements are quite low. The substitution element students use most is nominal substitution (41.66%), and the least used is clausal substitution (20%). The averages per student in the use of substitution elements are as follows: Nominal substitution (0.24), verbal substitution (0.22), clausal substitution (0.12).

According to the t-test results, it is seen that the average use of verbal substitution differs significantly in favor of written texts after the application ($p < 0.05$). In nominal substitution and clausal substitution, no

significant difference was found between students' pretest and post-test scores ($p > 0.05$).

Table 5. Students' levels of using conjunctions in written texts before and after application and dependent t-test results

Conjunction Type	Test	n	Usage	Mean	%	SD	t	p	Cohen's d
Additive	Pretest	120	792	6.60	40.80	3.62	0.09	.925	0.06 (trivial)
	Posttest	120	816	6.80	38.40	3.41			
	Total	240	1608	6.70	39.60				
Alternative	Pretest	120	144	1.20	7.40	1.52	1.88	.063	0.31 (small)
	Posttest	120	204	1.70	9.60	1.68			
	Total	240	348	1.45	8.50				
Contrastive	Pretest	120	180	1.50	9.30	1.61	1.73	.086	0.24 (small)
	Posttest	120	228	1.90	10.70	1.78			
	Total	240	408	1.70	10.00				
Time-Sequence	Pretest	120	228	1.90	11.70	1.98	0.74	.458	0.10 (trivial)
	Posttest	120	252	2.10	11.90	2.04			
	Total	240	480	2.00	11.80				
Conditional	Pretest	120	144	1.20	7.40	1.84	1.12	.266	0.21 (small)
	Posttest	120	192	1.60	9.00	2.01			
	Total	240	336	1.40	8.20				
Explanatory	Pretest	120	360	3.00	18.50	1.94	1.80	.074	0.26 (small)
	Posttest	120	300	2.50	14.10	1.88			
	Total	240	660	2.75	16.20				
Illustrative	Pretest	120	36	0.30	1.85	0.61	0.42	.677	0.15 (trivial)
	Posttest	120	48	0.40	2.25	0.69			
	Total	240	84	0.35	2.05				
Cause-Effect	Pretest	120	132	1.10	6.80	1.24	0.90	.369	0.15 (trivial)
	Posttest	120	156	1.30	7.35	1.47			
	Total	240	288	1.20	7.05				
Total Conjunction Usage	Pretest	120	2016	16.80	100	6.42	1.89	.061	0.22 (small)
	Posttest	120	2196	18.30	100	6.98			
	Total	240	4212	17.55	100				

When Table 5 is examined, it is seen that students mostly use additive (39.60%) and explanatory (16.20%) conjunctions. The least used conjunctions are illustrative conjunctions (2.05%). The averages per student in the use of conjunctions are as follows: Additive (6.70), explanatory (2.75), time-sequence (2.0), contrastive (1.70), alternative (1.45), conditional (1.40), cause-effect (1.20), illustrative (0.35).

According to the findings in Table 5, it is seen that the average use of alternative conjunctions differs significantly in favor of written texts after

the application ($p < 0.05$). No statistically significant difference was found between the average use of other conjunctions ($p > 0.05$).

Table 6. Students' levels of using lexical cohesion in written texts before and after application and dependent t-test results

Lexical Cohesion Type	Test	n	Usage	Mean	%	SD	t	p	Cohen's d
Words from Same Semantic Field	Pretest	120	1080	9.00	19.20	6.48	1.43	0.154	0.14
	Posttest	120	1188	9.90	20.80	6.95			
Exact Repetition of Word	Pretest	120	3780	31.50	67.20	11.85	0.51	0.609	0.08
	Posttest	120	3660	30.50	61.00	12.43			
Synonymous or Near-Synonymous Word	Pretest	120	336	2.80	6.00	3.24	1.88	0.062	0.35
	Posttest	120	480	4.00	8.40	3.78			
Use of Superordinate Term	Pretest	120	96	0.80	1.70	1.42	1.73	0.085	0.31
	Posttest	120	156	1.30	2.60	1.81			
Use of General Word	Pretest	120	456	3.80	8.10	2.88	1.21	0.229	0.15
	Posttest	120	408	3.40	6.80	2.34			
Total Lexical Cohesion Usage	Pretest	120	5748	47.90	100	14.82	1.54	0.126	0.18
	Posttest	120	5892	49.10	100	15.46			

In the study, while calculating lexical cohesion in students' written texts, the entire text was evaluated, and after reading the text, words related to the semantic field were counted. When these words appeared a second time in the text, they were evaluated as exact repetition of the word.

When Table 6 is examined, it is seen that students mostly use exact repetition of words (64.35%) and use of words from the same semantic field (20%). The least used element in lexical cohesion is the use of superordinate terms (2.15%). According to Table 6, the averages per student in the use of lexical cohesion are as follows: Exact repetition of words (31.00), use of words from the same semantic field (9.451), use of general words (3.60), use of synonymous or near-synonymous words (3.40), and use of superordinate terms (1.05). According to the dependent t-test results conducted to determine whether there is a significant difference in lexical cohesion before and after the application, it is seen that students' average use of lexical cohesion does not differ significantly before and after the application ($p > 0.05$).

Table 7. Students' Coherence levels in written texts before and after application

Text Coherence Dimension	Test	Insufficient n (%)	Moderate n (%)	Good n (%)	Very Good n (%)	Coherence Level Mean
Main Idea	Pretest	14 (11.7)	26 (21.7)	50 (41.7)	30 (25.0)	2.80
	Posttest	10 (8.3)	20 (16.7)	60 (50.0)	30 (25.0)	2.92
	Total	24 (10.0)	46 (19.2)	110 (45.8)	60 (25.0)	2.86
Thought Organization	Pretest	9 (7.5)	36 (30.0)	55 (45.8)	20 (16.7)	2.69
	Posttest	8 (6.7)	38 (31.7)	54 (45.0)	20 (16.7)	2.72
	Total	17 (7.1)	74 (30.8)	109 (45.4)	40 (16.7)	2.71
Structure / Introduction Thesis	Pretest	12 (10.0)	25 (20.8)	52 (43.3)	31 (25.8)	2.85
	Posttest	10 (8.3)	20 (16.7)	55 (45.8)	35 (29.2)	2.94
	Total	22 (9.2)	45 (18.8)	107 (44.6)	66 (27.5)	2.89
Structure / Conclusion Thesis	Pretest	14 (11.7)	25 (20.8)	58 (48.3)	23 (19.2)	2.76
	Posttest	10 (8.3)	22 (18.3)	65 (54.2)	23 (19.2)	2.84
	Total	24 (10.0)	47 (19.6)	123 (51.3)	46 (19.2)	2.80
Unity / Connection	Pretest	9 (7.5)	30 (25.0)	52 (43.3)	29 (24.2)	2.86
	Posttest	8 (6.7)	25 (20.8)	47 (39.2)	40 (33.3)	2.93
	Total	17 (7.1)	55 (22.9)	99 (41.3)	69 (28.8)	2.90

According to Table 7, students received the highest scores from the structure/introduction thesis (2.89) and unity/connection (2.90) criteria, while they received the lowest score from the thought organization (2.71) criterion. In general, it is seen that students' coherence averages are at a good level. A dependent-test was conducted to determine whether there was a significant difference between students' written texts, and the results are given in Table 8.

Table 8. Dependent t-test results regarding students' coherence levels in written texts before and after application

n	Written Expression	$\bar{X}$	ss	t	p
120	Pretest	2.78	0.590	1.12	0. .265
	Posttest	2.83	0.576		

According to Table 8, although students' posttest averages are higher, the difference between them is not statistically significant ($p > 0.05$). This situation reveals that text-linguistics-based text analyses do not affect students' skills in creating coherent texts.

Discussion

This study investigated the impact of text-linguistics-based analysis on students' proficiency in employing cohesion devices and producing cohesive texts, leading to the following conclusions:

Students utilized an average of 82 cohesion devices in their written texts prior to the intervention, whereas they employed 92 cohesion devices subsequent to the intervention. The predominant cohesion devices employed by students were lexical cohesiveness (49) and conjunctions (17), whereas the least utilized cohesion device was substitution (0.56). These data overlap with the findings of Can's (2012) [21] study conducted with 1693 secondary education students. Swales, J. M., & Feak, C. B. (2020) [20] determined that primary school students mostly used ellipsis (31.3%) and least used substitution (0.4%) in their narrative expressions. In the same study, it was revealed that 5th grade students used an average of 60.7 and 8th grade students used 71 cohesion devices. Yang and Yun (2012) [22] state that students mostly use reference elements (42.5%) and least use substitution and ellipsis (1.8%). Bae (2001) [23] determined the frequency of use of cohesion devices in her study as follows: Lexical cohesion, reference, conjunctions, ellipsis, substitution.

When students' written texts before and after the application were examined, a significant difference was found in favor of the posttest in terms of total cohesion device usage ($p < 0.05$). Conversely, when cohesion devices were assessed individually, a statistically significant difference was observed among the averages of ellipsis, substitution, and conjunctions ($p < 0.05$). The disparity in the utilization of reference and lexical cohesiveness is not statistically significant ($p > 0.05$). Students predominantly utilize demonstrative adjectives (28.4%) and comparative structures (23.7%) among reference elements, whereas relative pronouns are employed the least (0.6%) [21]. The average utilization of personal pronouns exhibits a statistically significant difference favoring written phrases post-application ($p < 0.05$), although no significant difference is observed among other reference elements ($p > 0.05$).



Students predominantly utilize ellipsis by omitting common parts (93.6%), while the loss of suffixes (5.3%) and entire sentences (0.9%) occurs infrequently. Upon examining the average utilization of ellipsis before and after the application, it is evident that the average removal of common elements and suffixes greatly favors written sentences post-application ($p < 0.05$). The average utilization of sentence omission does not exhibit a statistically significant difference ($p > 0.05$).

When the results of the study regarding the use of substitution elements are examined, it is seen that students' frequency of use is quite low. Said (1988) [24] also concluded that the least used cohesion device in modern Arabic literature is substitution. In the use of substitution elements, it is seen that students mostly use nominal substitution (41.6%) and least use clausal substitution (20%). In the use of substitution elements, while a significant difference was seen in favor of the posttest in verbal substitution ($p < 0.05$), no significant difference was found between students' pretest and posttest scores in nominal substitution and clausal substitution ($p > 0.05$).

According to the results of the research regarding conjunctions, it is seen that students mostly use additive (39.1%) conjunctions. The least used conjunctions are illustrative (1.7%) conjunctions. It is seen that students' average use of conjunctions is 16.9. In similar studies, [20, 21] determined that students used an average of 18.1 and 19.4.

Analysis of lexical coherence usage reveals that students predominantly employ exact word repetition (64.3%) and utilize terms from the same semantic field (20%). Lui and Brane (2005) [25] found that students predominantly employ exact word repetition (83.8%), whilst Lu, X., & Hu, R. (2024) [15] established that students primarily utilize terms from the same semantic field (65.9%). The least utilized factor in lexical cohesiveness is the employment of superordinate terms. Can (2012) reported the following findings concerning lexical cohesiveness in her study: utilization of words from the same semantic field (57.97%), precise word repetition (36.41%), employment of superordinate terms (0.58%), and usage of generic terms (0.45%). The mean utilization of lexemes from the identical semantic domain is 9.7. A person's vocabulary

is closely related to the utilization of terms within the same semantic space. Consequently, it can be asserted that an increased utilization of terms from the same semantic field by pupils correlates with a broader vocabulary. Comparing written sentences before and after the application for lexical cohesiveness, it is observed that there is no significant variation in students' average use of conjunctions ($p>0.05$).

Looking at the results of the research regarding text coherence, it is seen that in general, students' coherence averages are at a good level. While Swales, J. M., & Feak, C. B. (2020) state in their studies that students' skills in creating coherent texts are at a moderate level, Can (2012) states that they are at insufficient and moderate levels. When written texts before and after the application are examined in terms of text coherence, it is seen that the difference between them is not statistically significant ($p>0.05$).

At every level of the education process, both in reading education and in written expression studies, teaching cohesion devices that mediate semantic integrity in a text together as a whole will ensure that students gain awareness of the elements that constitute a coherent text while reading or writing. At the same time, students receiving an education where they can learn the ways to analyze a text, intratextual relationships, linear progression in the text, and determine the units of the text can be said to positively affect their skills in using cohesion devices and creating coherent texts, based on the results of this study.

Conclusion And Recommendations

This study investigated the impact of text-linguistics-based instruction on EFL undergraduate students' academic writing, with particular emphasis on cohesion and coherence development. Grounded in Cohesion in English, the research adopted a single-group pretest–posttest experimental design involving 120 second-year students at the University of Baghdad. The findings demonstrate that systematic instruction in cohesion devices significantly enhanced students' overall cohesion usage, particularly in ellipsis and substitution. The total cohesion mean increased from 81.96 to 91.48 ($p < 0.05$), indicating a moderate effect size. However, although coherence scores improved slightly, the difference



was not statistically significant ($p > 0.05$). This suggests that while cohesion can be developed through explicit structural training, coherence requires deeper cognitive, rhetorical, and organizational competence that may demand longer-term intervention.

Based on the study's findings, the following recommendations can be proposed to enhance students' writing abilities:

1. In writing education, it is essential to prioritize courses that enhance students' abilities to produce writings with semantic coherence, rather than merely addressing formal faults in their written texts.
2. Educators should assign students practical exercises on the utilization of conjunctions within sentences, between phrases, and across paragraphs.
3. To mitigate the repetitive usage of a certain word by students, it may be beneficial to conduct studies on the utilization of synonyms or near-synonyms of that term or related aspects. Consequently, humans can be cultivated to possess an extensive vocabulary.
4. Text analyses are crucial for enabling students to interpret and articulate their readings. Examining poetry, narratives, and novels during courses and requiring students to articulate these insights in written form are effective techniques for enhancing writing skills.
5. To assist students in attaining coherence in their writing, it may be beneficial to identify the structures of the texts discussed in courses and to elucidate the relationships among these structures.

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تحسين الكتابة الأكاديمية في اللغة الإنجليزية كلغة أجنبية من خلال التدخل اللغوي النصي: دراسة تجريبية لتطوير التماسك والترابط

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مستخلص البحث:

تهدف هذه الدراسة إلى فحص أثر التدريس القائم على علم اللغة النصي على استخدام طلاب اللغة الإنجليزية كلغة أجنبية في المرحلة الجامعية الأولى لأدوات الربط وقدرتهم على بناء نصوص أكاديمية متماسكة. أجريت الدراسة على 120 طالباً من طلاب السنة الثانية في جامعة بغداد باستخدام تصميم تجريبي أحادي المجموعة مع اختبار قبلي وبعدي. أكمل الطلاب مهام كتابة حرة قبل وبعد برنامج تدريبي لمدة ستة أسابيع قائم على منهجية الربط في اللغة الإنجليزية. تم تحليل البيانات باستخدام اختبارات t للعينات المترابطة في برنامج SPSS 15.0. أظهرت النتائج زيادة معنوية في إجمالي استخدام أدوات الربط من المتوسط $= 81.96$ (الانحراف المعياري $= 19.52$) إلى المتوسط $= 91.48$ (الانحراف المعياري $= 21.56$)، $t = 3.260$ ، $p = 0.001$ ، مع حجم تأثير متوسط ($d = 0.46$). لوحظ تحسن معنوي في الحذف ($p = 0.002$) والاستبدال ($p = 0.031$)، بينما لم تكن التغيرات في الربط المعجمي والإحالة ذات دلالة إحصائية ($p > 0.05$). ارتفعت درجات التماسك ارتفاعاً طفيفاً من المتوسط 2.78 إلى المتوسط 2.83 ، إلا أن هذا الفرق لم يكن ذا دلالة إحصائية (قيمة الاحتمال $= 0.265$). تشير النتائج إلى أن التدخل اللغوي النصي يُحسن استخدام التماسك بفعالية، لكن تأثيره على تطور التماسك الكلي محدود.

الكلمات المفتاحية: اللغويات النصية، التماسك، الترابط، الكتابة باللغة الإنجليزية كلغة أجنبية، دراسة تجريبية، الكتابة الأكاديمية.