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As far as the post tests of the experimental and control groups were compared, the following conclusions were reached:

1. There was a significant rise in using demonstrative reference, synonyms and temporal conjunctions in favor of the experimental group.

2. There was a significant drop in the frequency of personal reference in favor of the experimental group.

3. The high frequency of cohesive ties in the control group's post test was given to reference followed by conjunctions. However, the mostly used cohesive ties in the post test of the experimental group were conjunctions followed by reference.

Recommendations:

In view of the aforementioned results, teachers should give more emphasis to the theory of cohesion when writing is evaluated (Liu & Braine, 2005) . Since cohesion theory is important when teachers intend to improve the writing quality of their students, we recommend that cohesion should also be applied to delimit the errors students commit in an error analysis teaching methodology. It was evident that many students were unaware of the cohesive ties (LI Shuang- mei, 2009) . Therefore, this study should pave the way for further research on the significance of the frequencies of cohesion errors before and after applying the theory of cohesion in order to examine their effect on improving the quality of writing. Moreover, the researcher recommends conducting similar studies on the effect of cohesion on writing when the treated sample is larger in terms of the number of students.

Table (27)

T- Test of independent samples, to test the difference in total repetition due to group

group	N	Mean	S.D	D.F	T- value	Sig
control	30	2.17	1.05	58	1.772	0.082
experimental	30	1.73	0.83			

* Sig at (α=0.05)

Table (27) shows that there is no significant difference at (α=0.05) in total repetition due to group. Repetition was highly used by the students in the control group, and still, there is no significant drop in the experimental group frequencies. This could be due to the fact that the Arabic language is characterized by using repetition, so it might be difficult to eliminate repetition.

Conclusions:

We come to the conclusion that cohesion has an effect on both the quality of writing clarified either by the upgrading of the frequency of some cohesive ties or by reducing others. Zhang (2000) indicates that overusing cohesive ties has adverse effects on the quality of writing. The current study concludes that giving guided instruction about the way cohesion should be used and increasing some items and decreasing the use of others positively affects the quality of writing since the teacher instructed students that they should decrease the reference items and the total reiteration of the same item.

In terms of the experimental groups' pre- and post- tests' comparisons, the following results were found:

1. Cohesion significantly increased the frequency of demonstrative reference, synonyms, and additive conjunctions in the post test.
2. Cohesion reduced personal reference, causal and adversative conjunctions.
3. In reference to the pre- test results, the reference items were used more frequently than conjunctions.

Table (24) shows that there is no significant difference at (α=0.05) in causal conjunctions due to group due to the difficulty of using such a conjunction (HO & Waugh, 2008)

- ***There is no significant difference at (α=0.05) in adversative conjunctions due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (25) shows the results.

Table (25)

T- Test of independent samples, to test the difference in adversative conjunctions due to group

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.67	0.92	58	0.817	0.417
experimental	30	0.50	0.63			

* Sig at (α=0.05)

Table (25) shows that there is no significant difference at (α=0.05) in adversative conjunctions due to group due to the same reason mentioned in table (24) .

- ***There is no significant difference at (α=0.05) in temporal conjunctions due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (26) shows the results.

Table (26)

T- Test of independent samples, to test the difference in temporal conjunctions due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.17	0.38	58	2.225	* 0.030
experimental	30	0.53	0.82			

* Sig at (α=0.05)

Table (26) shows that there is significant difference at (α=0.05) in temporal conjunctions due to group, in favor of experimental group entailing that cohesion is effective in temporal conjunctions by increasing its use though it was one the most difficult conjunctions to use (HO ML & Waugh, 2008) . It is also incumbent to state that conjunctive ties add to the quality of writing (SONG & Xia, 2002; ZHOU Xin- hong, 2007) .

- ***There is no significant difference at (α=0.05) in total repetition due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (27) shows the results

♦ ***There is no significant difference at (α=0.05) in conjunctions due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (22) shows the results.

Table (22)

T- Test of independent samples, to test the difference in conjunctions due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	5.13	1.81	58	0.563	0.575
experimental	30	5.43	2.28			

* Sig at (α=0.05)

Table (22) shows that there is no significant difference at (α=0.05) in conjunctions due to group. However, conjunctions in the experimental group had the highest percentage of use at (5.43) .

♦ ***There is no significant difference at (α=0.05) in additive conjunctions due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (23) shows the results.

Table (23)

T- Test of independent samples, to test the difference in additive conjunctions due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	2.83	0.91	58	0.421	0.675
experimental	30	3.00	1.97			

* Sig at (α=0.05)

Table (23) shows that there is no significant difference at (α=0.05) in additive conjunctions due to group. However, in the pre- and post test results of the experimental group, significant increase was found due to cohesion.

♦ ***There is no significant difference at (α=0.05) in causal conjunctions due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (24) shows the results.

Table (24)

T- Test of independent samples, to test the difference in causal conjunctions due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	1.47	1.07	58	0.228	0.821
experimental	30	1.40	1.19			

* Sig at (α=0.05)

Table (19)

T- Test of independent samples, to test the difference in synonyms due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.53	0.63	58	2.088	* 0.041
experimental	30	1.00	1.05			

* Sig at (α=0.05)

Table (19) shows that there is significant difference at (α=0.05) in synonyms due to group, in favor of the experimental group. Similarly, the significant rise in synonyms due to cohesion is affirmed by many researchers as it adds to the quality of writing (SONG & Xia, 2002) .

- ***There is no significant difference at (α=0.05) in antonyms due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (20) shows the results.

Table (20)

T- Test of independent samples, to test the difference in antonyms due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.03	0.18	58	1.921	0.060
experimental	30	0.27	0.64			

* Sig at (α=0.05)

Table (20) shows that there is no significant difference at (α=0.05) in antonyms due to group.

- ***There is no significant difference at (α=0.05) in collocation due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (21) shows the results.

Table (21)

T- Test of independent samples, to test the difference in collocation due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.73	0.58	58	0.781	0.438
experimental	30	0.87	0.73			

* Sig at (α=0.05)

Table (21) shows that there is no significant difference at (α=0.05) in collocation due to group. It was very difficult for the students to use collocations.

Table (17)

T- Test of independent samples, to test the difference in personal reference due to group

group	N	Mean	S.D	D.F	T- value	Sig
control	30	5.73	2.57	58	5.730	* 0.0001
experimental	30	2.53	1.66			

* Sig at (α=0.05)

Table (17) shows that there is significant difference at (α=0.05) in personal reference due to group, in favor of the experimental group. Cohesion significantly reduced reference in the experimental group (ZHOU Xin- hong, 2007) . Researchers found that Reference frequency was rated as the third salient item (SONG & Xia, 2002) when students were taught writing a paragraph in the traditional way. Consequently, the current significant drop in personal reference entails that applying cohesion was successful if the quality of writing is to be assessed.

- ***There is no significant difference at (α=0.05) in demonstrative reference due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (18) shows the results.

Table (18)

T- Test of independent samples, to test the difference in demonstrative reference due to group

group	N	Mean	S.D	D.F	T- value	Sig
control	30	0.47	0.63	58	2.811	* 0.007
experimental	30	1.13	1.14			

* Sig at (α=0.05)

Table (18) shows that there is significant difference at (α=0.05) in demonstrative reference due to group, in favor of the experimental group. The demonstrative reference rising frequency indicates that the application of cohesion was rewarding and that cohesion allowed for a variety of cohesive ties and that was the purpose of the teaching of cohesion.

- ***There is no significant difference at (α=0.05) in Synonyms due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (19) shows the results.

Table (15)

T- Test of paired samples, to test the difference in Repetition due to Cohesion.

Repetition	N	Mean	S.D	D.F	T- value	Sig
Pre	30	2.03	1.07	29	1.179	0.248
Post	30	1.73	0.83			

* Sig at (α=0.05)

Table (15) shows that there is no significant difference at (α=0.05) in **total repetition** due to Cohesion. It is evident that repetition is a characteristic of Arabic language; thus, students were unable to reduce it significantly (Khalil, 2002) . ZHOU Xin- hong also found that due to applying cohesion, lexical reiteration had no significant decrease (2007) .

Comparisons between control and experimental groups frequencies of cohesive ties (Post tests) :

- ***There is no significant difference at (α=0.05) in Reference due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (16) shows the results.

Table (16)

T- Test of independent samples, to test the difference in reference due to group.

group	N	Mean	S.D	D.F	T- value	Sig
control	30	6.20	2.70	58	4.009	* 0.0001
experimental	30	3.67	2.17			

* Sig at (α=0.05)

Table (16) shows that there is significant difference at (α=0.05) in reference due to group, in favor of the experimental group. The significant drop in Reference in the experimental group is a good improvement in the quality of the writing (ZHOU Xin- hong, 2007) as compared to the control group in the post test results. In terms of saliency of ties, reference was mostly salient after conjunctions in the experimental group.

- ***There is no significant difference at (α=0.05) in personal due to group:*** The researcher used T- Test of independent samples to test the hypothesis. Table (17) shows the results.

conjunction. This drop could be related to the notion that temporal causal and adversative conjunctions were the most difficult cohesive ties for students to use (HO & Waugh, 2008).

10. ***There is no significant difference at (α=0.05) in adversative conjunctions due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (13) shows the results.

Table (13)

T- Test of paired samples, to test the difference in adversative conjunctions due to Cohesion.

Adversative	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.90	0.99	29	2.183	* 0.037
Post	30	0.40	0.63			

* Sig at (α=0.05)

Table (13) shows that there is significant difference at (α=0.05) in **adversative** conjunctions due to Cohesion. This means that applying the theory of Cohesion resulted in **reducing** the number of adversative conjunctions. This is due to the aforementioned reason in table (12) stating it might have been one of the most difficult type of conjunctions for students.

11. ***There is no significant difference at (α=0.05) in Temporal due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (14) shows the results.

Table (14)

T- Test of paired samples, to test the difference in temporal conjunctions due to Cohesion

Temporal	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.47	0.86	29	0.403	0.690
Post	30	0.53	0.82			

* Sig at (α=0.05)

Table (14) shows that there is no significant difference at (α=0.05) in temporal conjunctions due to Cohesion. The researcher noticed that students rarely use the temporal conjunctions correctly.

12. ***There is no significant difference at (α=0.05) in total repetition due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (15) shows the results.

Table (10) shows that there is no significant difference at (α=0.05) in conjunctions due to Cohesion. To clarify the point, research revealed that Arab students don't make use of conjunctions while writing in English (Khalil, 2002) .

8. ***There is no significant difference at (α=0.05) in Additive conjunctions due to Cohesion (pre, post):*** The researcher used T- Test of paired samples to test the hypothesis. Table (11) shows the results.

Table (11)

T- Test of paired samples, to test the difference in additive conjunctions due to Cohesion.

Additive	N	Mean	S.D	D.F	T- value	Sig
Pre	30	2.31	1.41	29	2.301	* 0.029
Post	30	3.00	1.97			

* Sig at (α=0.05)

Table (11) shows that there is significant difference at (α=0.05) in additive conjunctions due to Cohesion. This means that Cohesion increased the Additive (ZHOU Xin- hong, 2007) . Many researchers related the increase in conjunctions to adopting the theory of cohesion (Jafarpur, 1991, SONG Mei- hua & Xia, 2002) in that saliency of conjunctions improved the quality of writing. The post test of this study clarifies that conjunctions recorded the highest mean at (5.43) . Other researchers found that conjunctions were among the highly used ties due to cohesion (Song & Xia, 2002; Liu and Braine, 2005) .

9. ***There is no significant difference at (α=0.05) in causal conjunctions due to Cohesion (pre, post).***

The researcher used T- Test of paired samples to test the hypothesis. Table (12) shows the results.

Table (12)

T- Test of paired samples, to test the difference in Causal conjunctions due to Cohesion.

Causal	N	Mean	S.D	D.F	T- value	Sig
Pre	30	2.10	1.27	29	2.911	* 0.007
Post	30	1.40	1.19			

* Sig at (α=0.05)

Table (12) shows that there is significant difference at (α=0.05) in **causal** conjunctions due to Cohesion. This means that Cohesion reduced the Causal

Table (8)

T- Test of paired samples, to test the difference in Antonyms due to Cohesion.

Antonyms	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.30	0.47	29	0.273	0.787
Post	30	0.27	0.64			

* Sig at (α=0.05)

Table (8) shows that there is no significant difference at (α=0.05) in **Antonyms** due to Cohesion. The textbook of the course allows for more synonyms than antonyms; this might be the reason for the inadequate improvement.

6. There is no significant difference at (α=0.05) in Collocation due to Cohesion (pre, post)

The researcher used T- Test of paired samples to test the hypothesis. Table (9) shows the results.

Table (9)

T- Test of paired samples, to test the difference in Collocation due to Cohesion.

Collocation	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.60	0.72	29	1.547	0.133
Post	30	0.67	0.73			

* Sig at (α=0.05)

Table (9) shows that there is no significant difference at (α=0.05) in **Collocation** due to Cohesion. Similarly, Khalil (1989) added that collocation, and antonyms were not highly employed by Arab students, rather, reference and lexical reiteration were the main cohesive devices overused.

7. There is no significant difference at (α=0.05) in conjunctions due to Cohesion (pre, post) : The researcher used T- Test of paired samples to test the hypothesis. Table (10) shows the results.

Table (10)

T- Test of paired samples, to test the difference in Conjunctions due to Cohesion.

Conjunctions	N	Mean	S.D	D.F	T- value	Sig
Pre	30	5.60	2.06	29	0.563	0.578
Post	30	5.43	2.28			

* Sig at (α=0.05)

Table (6)

T- Test of paired samples, to test the difference in Demonstrative due to Cohesion.

Demonstrative	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.50	0.78	29	2.617	* 0.014
Post	30	1.13	1.14			

* Sig at (α=0.05)

Table (6) shows that there is significant difference at (α=0.05) in Demonstrative due to Cohesion. This means that Cohesion increased the demonstrative reference as the personal reference was reduced. However, the pre- test frequency of the demonstrative reference is very low. This goes against Liu and Braine (2005) in their study on the frequencies of cohesive ties, stated. He found that demonstrative reference had the lowest percentage of use.

4. ***There is no significant difference at (α=0.05) in Synonyms due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (7) shows the results.

Table (7)

T- Test of paired samples, to test the difference in Synonyms due to Cohesion.

Synonyms	N	Mean	S.D	D.F	T- value	Sig
Pre	30	0.43	0.68	29	2.894	* 0.007
Post	30	1.00	1.05			

* Sig at (α=0.05)

Table (7) shows that there is significant difference at (α=0.05) in Synonyms due to Cohesion. This means that Cohesion **increased** the Synonyms. This was a good contribution to the quality of writing since many researchers related lexical cohesion as an element that improves the quality of writing (Liu & Braine, 2005; Song & Xia, 2002) . Moreover, other researchers indicated that synonym use was highly rated all times (Zhang, 2000) . However, other researchers found that synonyms were not highly used by Arab students (Khalil, 1989) .

5. ***There is no significant difference at (α=0.05) in Antonyms due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (8) shows the results.

Experimental group analysis of frequencies of cohesive ties (pre and post tests) :

1. ***There is no significant difference at (α=0.05) in Reference frequencies due to Cohesion (pre- and post- tests) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (4) shows the results.

Table (4)

T- Test of paired samples, to test the difference in Reference due to Cohesion.

Reference	N	Mean	S.D	D.F	T- value	Sig
Pre	30	5.90	2.56	29	5.123	* 0.0001
Post	30	3.67	2.17			

* Sig at (α=0.05)

Table (4) shows that there is significant difference at (α=0.05) in Reference due to Cohesion. This means that Cohesion reduced the reference (Khalil, 2002) . This result goes in line with ZHOU Xin- hong (2007) who found that reference is reduced due to cohesion.

2. ***There is no significant difference at (α=0.05) in Personal reference due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (6) shows the results.

Table (5)

T- Test of paired samples, to test the difference in Personal reference due to Cohesion.

Personal	N	Mean	S.D	D.F	T- value	Sig
Pre	30	5.40	2.36	29	7.736	* 0.0001
Post	30	2.53	1.66			

* Sig at (α=0.05)

Table (5) shows that there is significant difference at (α=0.05) in Personal reference due to Cohesion. This means that Cohesion reduced the Personal reference. This was due to the fact that formal writing requires reducing reference (ZHOU Xin- hong, 2007, pp. 35- 37) . In this study, the students were taught not to overuse personal reference since its overuse doesn't add to the quality of the writing.

3. ***There is no significant difference at (α=0.05) in Demonstrative reference due to Cohesion (pre, post) :*** The researcher used T- Test of paired samples to test the hypothesis. Table (6) shows the results.

Table (2)

Frequencies, means and standard deviations of students grades due to Group and Gender in the post tests.

Group	Gender	Frequency	Mean	Standard deviation
Control	Male	12	5.50	1.24
	Female	18	5.89	1.37
	Total	30	5.73	1.31
Experimental	Male	9	7.06	1.57
	Female	21	7.55	1.40
	Total	30	7.40	1.45
Total	Male	21	6.17	1.57
	Female	39	6.78	1.61
	Total	60	6.57	1.61

Table (3)

Two Way ANOVA, to test the differences in students writing achievement due to Group and Gender.

Source of variation	Sum of squares	Degrees of Freedom	Mean squares	F value	Sig.
Group	34.714	1	34.714	18.008	* 0.0001
Gender	2.608	1	2.608	1.353	0.250
Group * Gender	.036	1	0.036	0.019	0.892
Error	107.952	56	1.928		
Total	152.233	59			

* Sig at (α=0.05)

Table (3) indicates that there is a significant difference at (α=0.05) in the students' writing achievement due to Group in favor of experimental group. This means that students who were taught by Cohesion are better than students who were taught by the traditional method (Jin, 2001; LI Shuang- me, 2009; Liu &Braine, 2005; Song & Xia, 2002; ZHOU Xinhong, 2007) . Other gender related differences were not found (Jones & Myhill, 2007) . What adds to the quality of the study is that the students who were taught by applying cohesion theory are Arab students whose English language abilities are weak; therefore, cohesion allows them to write more effectively than before.

were observed by the teacher while writing.

Finally, both groups were invited to write a composition as the post test. At the end of the semester, a post- test was administered to both groups to investigate the students' achievement in paragraph writing in terms of quality of writing and cohesion distribution. The students were asked to write an opinion paragraph about "Obsession with sports can either be dangerous or beneficial". The frequency and type of correctly used cohesive devices were analyzed into tables and the quality of their writing was given a grade out of 10% in relevance to the same writing rubric (to be provided in the appendix) . Then, the frequencies of **correctly** used cohesive devices in both groups and the quality of the writing were statistically processed using SPSS and appropriate statistical processes. As for the validity of the instrument, four faculty members validated the instrument as it matches the study purposes. The reliability of the study was calculated with Split- Half method. The reliability coefficient was (0.71) . The reliability coefficient value is high enough and suitable for research purposes.

Study Design and analysis:

The study design was experimental with the independent variable of the method (Cohesion treatment and traditional method of teaching writing) . In addition, the dependent variable was the students' achievement (frequencies) in: reference (personal, demonstrative) , synonyms, antonyms, collocation, conjunctions (additive, causal, adversative, temporal) , and lastly total repetition of the same item.

Data Analysis:

The data was treated by SPSS. The following statistical procedures were used: Frequencies, Means and standards deviation, T- Test of Paired Samples, T- Test of Independent Samples, One- Way ANOVA, and Two- Way ANOVA.

Main hypothesis: There are no significant differences at (α=0.05) in the students' writing achievement due to Group and Gender. The researcher used Two Way ANOVA to test the hypothesis.

As far as the experimental group is treated, the teacher instructed the students in the first activities about the necessary types of cohesion as delimited in the diagnostic pre- test at the beginning of the semester. They were instructed on writing opinion and cause and effect paragraphs. The treat of the experimental group lasted for four months. The control group was taught in the traditional way of teaching paragraph writing for four months. The researcher consulted another teacher to assess the students' performance in both the pre- and post- test results. Reference, synonyms, antonyms, repetition, collocation, and conjunctions were the main cohesive ties in focus. After the teacher demonstrated the correct use of cohesive devices, the students were instructed to engage in collaborative in- class paragraph writing activities. The students had to read paragraphs and underline instances of cohesion so as to replace reiterated items with synonyms. Then, the students were asked to rewrite their own paragraphs in accordance with the correct use of cohesive devices and the assignments were followed by an assessment procedure in view of cohesion. Every week, the students were given feedback about their use of cohesion. All the paragraphs the students were asked to write were related to their textbook topics. The students were asked to work collaboratively in- class by being divided into groups of four. Two groups will prepare paragraphs at home related to one of the topics they have studied about. The two other groups will work together in- class writing a paragraph on the board by one group and then the other group is supposed to underline the cohesive ties and then rewrite the paragraph by using synonyms, antonyms, conjunctions, and collocations that will eventually create a new paragraph. They recognized that employing various cohesive devices added to the unity of their writings (Mansell, 2002) . However, the control group didn't receive any instruction about the theory of cohesion, but concerning the activities, they were identical in number and topic. The control group was instructed on how to write a paragraph and then the written paragraphs by the students either individually or in groups were analyzed in terms of its quality only. The topics covered by applying the theory of cohesion were four different topics and therefore the researcher used two types of paragraphs, cause and effect and opinion paragraph. The students welcomed the idea of applying cohesion to the teaching of writing; therefore, the researcher didn't face any challenges because most of the activities were done in- class and the students

passed the entrance test or succeeded in a remedial course. One of the main objectives of the course is to teach writing at the paragraph level. The sample of the study is purposive and consisted of an experimental group and a control group; each group consisted of 30 non- English majors. Ten students were eliminated from each group because they did not have the pre- or the post-tests.

Study instrument:

The instruments used in this study include: a pre- test, a post- test, rubrics for writing a paragraph, cohesive ties table or checklist. The participants were instructed to write a 100 word paragraph on a general topic.

Study procedures:

The two sections of the experimental and control groups were taught by the same teacher using traditional classroom assessment methods such as the writing rubrics for paragraphs. A pre- test for the two groups was established to delimit areas of weaknesses in students' writings, evaluate their writing level and to test the equivalence of the study group before applying Cohesion. The two groups were equivalent. Table (1) shows the results of One Way ANOVA to test the equivalence between the experimental and control groups before applying Cohesion

Table (1)

One Way ANOVA results to test the equivalence between the experimental and control groups.

Source of Variation	Sum of Squares	D.F	Mean Square	F	Sig.
Between Groups	11.267	1	11.267	0.090	0.766
Within Groups	7285.067	58	125.605		
Total	7296.333	59			

Table (1) indicates that experimental and control group are equivalent before applying Cohesion.

The students of the two groups were asked to write a **cause and effect** paragraph about "reasons behind the difficulty in learning English Language". It was found that most of the errors in writing were related to cohesion in terms of reference, synonyms, collocation, total repetition of items and conjunctions. Their pre- and post- tests' scores were out of 10% and the length of their paragraphs was, on average, 100- 150 words.

C. Are there significant differences in the frequencies of collocations in the experimental group before and after applying the theory of cohesion?

D. Are there significant differences in the frequencies of conjunctions (additive, causal, adversative, and temporal) in the experimental group before and after applying the theory of cohesion?

E. Are there significant differences in the frequencies of total repetition in the experimental group before and after applying the theory of cohesion?

3. Are there significant differences in the frequencies of the cohesive ties regarding the post tests of the experimental and control groups?

A. Are there significant differences in the frequencies of reference (personal, demonstrative) regarding the post tests of both the experimental and control groups?

B. Are there significant differences in the frequencies of synonyms and antonyms regarding the post tests of both the experimental and control groups?

C. Are there significant differences in the frequencies of collocations regarding the post tests of both the experimental and control groups?

D. Are there significant differences in the frequencies of conjunctions (additive, causal, adversative, and temporal) regarding the post tests of both the experimental and control groups?

E. Are there significant differences in the frequencies of total repetition regarding the post tests of both the experimental and control groups?

Methodology:

The Methodology of this study is Quasi Experimental as there is a treatment with a purposive sample.

Study population and sample:

The population of the study consisted of 80 non- major students studying English general course at An Najah National University. The university English general course (lasts for 4 months) objectives entail that the students enrolled in such a course are of an intermediate level in English as they either

same lexicon instead of using a synonym or a collocation. Therefore, applying the theory of cohesion to the teaching of writing forces the students to search for collocations, synonyms and antonyms to look for a variety of cohesive devices that may add to the quality of writing.

However, it should be emphasized that some researchers like (Zhang, 2000) included all the cohesive ties which were improperly or correctly used when investigating cohesive ties in relation to the writing quality. The current study counts only the properly used cohesive ties to measure the good or poor quality of writing.

As far as the frequency of the cohesive ties is measured, some researchers examined only the number of the ties. Yusun Kang (2005) conducted a study on the non- native learners' choices of cohesive devices and found that the mother tongue affects the type of cohesive tie the EFL students chose. He found that Korean students opted for the demonstrative reference and repetition in writing more than any other tie. Guthrie (2008) found that English language learners of a Spanish origin didn't employ substitution and ellipsis, rather, they used the additive and temporal ties; at the lexical level, the participants opted for lexical repetition such as synonyms and total repetition.

Questions of the study: *The questions of the study are as follows:*

1. Are there any significant differences in the students' writing achievement due to Group and Gender?

2. Are there significant differences in the frequencies of all the cohesive devices in the experimental group before and after applying the theory of cohesion?

A. Are there significant differences in the frequencies of reference (personal, demonstrative) in the experimental group before and after applying the theory of cohesion?

B. Are there significant differences in the frequencies of synonyms and antonyms in the experimental group before and after applying the theory of cohesion?

LI Shuang- mei (2009) argued that giving direct instruction to the students about cohesion is important to improve the writing abilities because students had problems with reference, conjunctions, etc. Other researchers found that applying cohesion improves the quality of writing (Jin, 2001, LI Shuang- me, 2009; Liu &Braine, 2005; Song & Xia, 2002; ZHOU Xin-hong, 2007) . SONG & Xia (2002) compared the cohesive features of good and poor writings as revealed in the compositions of English non- major Chinese students. They found that the cohesive device positively affecting the assessment of the compositions was lexical cohesion, and the second one was grammatical cohesion followed by reference.

ZHOU Xin- hong (2007) examined the application of the theory of cohesion to the teaching of Chinese EFL learners by opting for a control group and an experimental group. He examined the frequencies of cohesive ties and their effect on the quality of writing and found that cohesion improved the quality of writing. He found that the reference items and lexical reiteration of the two groups dropped slightly. It is noteworthy that what added to the quality of the writing was the use of conjunctions, mostly additive and enhancement.

Other researchers such as Liu & Braine (2005) investigated the use of cohesive devices in the writing of undergraduate students and found that students used three types of which lexical devices were the mostly used followed by reference and conjunctions. This finding is in line with that of previous studies (Zhang, 2000) . The least frequently used tie was the demonstrative reference. The quality of writing was affected by the total number of cohesive ties and the errors committed in using reference and lexis.

However, some researchers found that cohesion doesn't affect the quality of writing (Castro, 2004; Chen, 2008; Jafarpur, 1991, Zhang, 2000) . JO- Ling Chen (2008) examined college students use of cohesive devices and the relationship between the devices and the quality of writing. He found that lexical devices had the highest percentage of use followed by reference and then conjunctions. However, his study revealed that overusing cohesive devices negatively affected the quality of writing. Zhang (2000) studied cohesion employment by Chinese English majors and found that cohesion is not related to good or poor writing, but agreed with other researchers that lexical collocations add to the good quality of writing (Jafarpur, 1991; Zhang, 2000) . Zhang (2000) also indicated that the EFL students preferred to use the

A reference device is used to connect elements within the same text. Personal and demonstrative reference (e.g., this, that, the) are the only two referential items used by the students in their pre- and post tests to maintain cohesion. A conjunction links together phrases or two separate sentences. The conjunctions included in the current study as used by the students are: additive conjunctions (e.g., and, or, not) , adversative conjunctions (e.g., however, but, although) , causal conjunctions (e.g., so, therefore, thus) , and temporal conjunctions (e.g., then, next, finally) . As far as lexical cohesion is in focus, Halliday and Hasan (1976) identified the following lexical items: total repetition is repeating the same word. Also, collocation is the use of two or more words that usually occur together. Synonyms are words that are similar in meaning, and antonyms are words which are opposites. Substitution and ellipsis were excluded from the study (because students rarely use devices as such when they formally communicate (Halliday, 2000; Liu & Braine, 2005) . This study is significant since it must be acknowledged by all teachers that applying the theory of cohesion to the teaching of writing is essential.

Literature review:

Many researchers found that EFL students were incompetent in terms of using cohesion (Khalil, 2002, Olateju, 2006) . The students made mistakes due to incorrect choices of cohesive ties in writing. Although researchers have dug deep into the effect of applying cohesion theory to the teaching of writing (Kong Ling- ling, 2002; Liu and Braine, 2005; ZHOU Xin- Hong, 2007) , most of the research papers addressed the descriptive part.

In terms of the effect of cohesion on the quality of writing, Al- Jarf (2001) found that Arab EFL learners couldn't opt for the correct choices of cohesive ties due to the insufficient knowledge about cohesion. She investigated the use of cohesive ties and found that conjunctions were the easiest to use, but reference was very difficult. Guthrie (2008) recommended conducting more research focusing on more students groups and the use of cohesion.

Khalil (1989) contended that Arab students overused lexical reiteration of the same item and the frequency of other lexical and grammatical cohesive ties dropped. Therefore, the quality of writing was poorly evaluated in terms of both cohesion and coherence. He also found that Arab students overused reference. Therefore, he recommends that students should be given more instruction about the importance of cohesion on the quality of writing as a whole.

Introduction:

What is challenging in the process of teaching paragraph writing is producing unified texts with minimal writing errors. Teachers consider writing as the main issue as they found that many students are unable to produce academic papers as effective as it should be in terms of the quality and unity of structure.

Cohesion and coherence are two important elements entailing "good" writing (Halliday, 2000; Lui 2000) . Examining cohesive ties use can provide insights into the extent to which students from different majors and levels maintain cohesion in their paragraph writing. Therefore, the role of the teachers is to give their students direct instruction about the correct modes of writing from the point of view of cohesion (Johnstone, 2007, 159) .

It is incumbent to say that cohesion as proposed by Halliday and Hasan (1976) makes sentences hang together (Celce- Murica and Olshtain, 2000, 150) . Moreover, cohesive ties function in writing to maintain unity within a sequence of sentences to simplify the interpretation of the text (Hafeez, 2001) . The students' ability to use cohesive devices creates a sense of flow of ideas enabling students to improve their sentences (Mansell, 2002; Qing- feng, 2009) . The current study helps to describe the effect of applying cohesion on the frequency of cohesive ties and the quality of writing when English-language learners, whose primary language is Arabic, employ the skill of writing.

Cohesion is pinpointed as the employment of all the explicit linguistic devices to signal relations between sentences. The cohesive devices that instructors could benefit from in the process of teaching paragraph structure are categorized by Johnstone (2007, 150) and Halliday & Hasan (1976) as follows: reference, conjunction, synonymy, antonymy, collocation, and total lexical repetition. Synonyms and antonyms are of great importance since using them to improve the quality of writing is important as many teachers complain that when it comes to writing, students use repetitive words rather than synonyms or antonyms. Substitution and ellipsis are excluded from the current study due to the fact that students didn't use them in the pre-test results. Other researchers found that these two items are rarely used by students in written English (Liu & Braine, 2005; Zhang, 2000) .

Abstract:

It is essential for the students to be fully aware of the theory of cohesion (Halliday & Hasan, 1976) so as to allow for continuity of thought while writing compositions (Qing- feng, 2009) . Therefore, this study investigates the effect of applying cohesion (Halliday & Hasan, 1978) in the students' compositions when the quality of their writing and frequency of cohesive ties are analyzed. The sample of the study consisted of an experimental group and a control group; each group consisted of 30 non- English majors studying English I; a university required course at An- Najah National University. A pre- writing test was developed and its validity and reliability were established. The findings of the study revealed that cohesion had a positive effect on the quality of the students' writing. It was also found that cohesion increased the frequencies of conjunctions which formed the largest percentage, followed by reference items and then synonyms in favor of the experimental group. Apart from that, certain differences were found in terms of the frequency of use of some cohesive ties after applying cohesion in relation to the in- group or among groups analyses. In light of the findings, it is recommended that students should be trained on how to use cohesion to positively affect their writing skills.

ملخص:

أنه من الضروري أن يكون الطلبة على علم واسع بأثر نظرية تماسك او ترابط الجمل Cohesion (Halliday & Hasan, 1976) على ترابط الأفكار عند ممارسة مهارة الكتابة (Qing- feng, 2009) . وبالتالي فان الدراسة الحالية تتطرق إلى بحث أثر تطبيق استخدام أدوات ترابط الجمل على جودة مهارة الكتابة و عدد الأدوات الترابطية. وتكونت عينة البحث من عينة تجريبية وعينة ضابطة، كل منها مكونة من ثلاثين طالباً يدرسون اللغة الانجليزية كلغة ثانية لمساق انجليزي متطلب جامعي عام لجميع التخصصات. وقد خضع طلاب العينتين إلى امتحان أول قبل تطبيق النظرية وامتحان ثاني ينص على كتابة فقرة عامة، وتوصلت الدراسة إلى أن طلبة العينة التجريبية حصلوا على نتائج أعلى من العينة الضابطة من حيث جودة الكتابة. أما من ناحية عدد الأدوات الترابطية وتكرارها فوجدت الباحثة أن تطبيق نظرية التماسك Cohesion كان لها أثر على زيادة أو نقصان استخدام بعض من أدوات الترابط حيث سجلت أدوات الربط conjunctions أعلى نسبة تتلوها الضمائر references عند طلبة العينة التجريبية وفي ضوء هذه النتائج طرحت توصيات تنص على ضرورة تطبيق النظرية لما لها من أثر إيجابي على تحصيل الطلبة الكتابي.

The Effect of Applying the Theory of Cohesion to the Teaching of Writing to EFL Learners

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