THE EFFECT OF TEXT COHESION RECOGNITION ON IRANIAN EFL LEARNERS' READING COMPREHENSION ABILITY

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ABSTRACT

This study was conducted to investigate the effect of text cohesion recognition on Iranian Intermediate EFL learners' reading comprehension ability. For this purpose 120 male and female learners of English at Kish language institute participated in this study. Having being homogenized by a TOEFL test, 80 learners were selected and they were randomly assigned into two groups of 40, control and experimental. Then both groups sat for a pre-test, which was a reading comprehension test. The purpose of this test was to measure the learners' initial subject knowledge of reading comprehension ability. Afterwards, the experimental group received treatment based on text cohesion recognition exercise. However, the control group received no treatment and approached the traditional way of teaching. The treatment procedure took 10 sessions. Finally, at the end of the course both groups sat for the posttest of reading comprehension. Then the statistical analysis was run through one-way ANOVA. It was explored from the study that learners' reading ability improves more when they are provided with text cohesion recognition exercise. However, this study provides a significant contribution in curriculum innovation and policy with respect to the learners' reading comprehension development.

Key Words: Text Cohesion Recognition – Reading Comprehension.

INTRODUCTION

Cohesion has been defined in a number of ways. Widdowson defines it in terms of the distinction that is made between the illocutionary act and the proposition. In his view (P.52), propositions, when linked together, form a "text" whereas illocutionary acts, when related to each other, create different kinds of "discourse."

According to Halliday and Hasan (1976), cohesion and register enable us to create a text. Register is concerned with what a text means. It is defined by Halliday and Hasan as the "set of semantic configuration that is typically associated with a particular class of context of situation, and defines the substance of the text."

Cohesion, as contrasted with register, is not concerned with what a text means. Rather, it refers to a set of *meaning relations* that exist within the text. These relations are not of the kind that link the components of a sentence and they differ from sentential structure. The discovery of these meaning relations is crucial to its interpretation.

Statement of the Problem

Reading comprehension is a very complex process and in order to grasp who readers make sense of written symbols, it is essential that the process of reading comprehension and the role of factors leading to the product of this process be understood properly. Generally, two factors may influence reading comprehension: internal and external (Sadeghi,2007). Internal factors, called reader variable, refer to everything related to the reader such as his /her cognitive abilities and strategies, background knowledge and effective characteristics. External factors, called text variable, context variable and writer variable, refer to all factors external to the reader. Context variable refers to all situational elements such as the time of reading and the place of reading as well as the larger socio-economic context. Writer variable refers to the text producer. There is little dispute among researchers that the reader plays the central role

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in an act of reading. While the reader was once believed to be a passive receiver of information, he/ she is now considered an active participant in a reading activity (Chastain, 1988; Sadeghi,2007).

Because of important of reading comprehension in language instruction and particularly the necessity of undertaking and comprehending various texts at academic level, there seem to be still an increasing need and space for conducting more research in this field. Various theories and works have been a part of growing body of ESL and EFL reading research as well as investigations concerning cohesion and coherence as subcategories of communicative competence and textually important factors in reading comprehension.

This study is addressed to identify the major difficulty of EFL Iranian learners in identifying the text cohesion to interpret their function correctly in their reading comprehension ability.

Research Questions

In order to tackle the problem of the research in a very consolidated way, the following research questions have been formulated as follows:

1**.** Do Iranian intermediate EFL learners benefit from being explicitly taught about cohesive devices in their reading comprehension course?

2. Are intermediate Iranian EFL learners able to identify the textual cohesive devices and interpret their function correctly in their reading comprehension?

Research Hypothesis

To answer the research questions of the study, the following research hypothesis have been formulated as follows:

1. A complete knowledge of cohesive devices (substitution, conjunction, ellipsis) has no impact on Iranian intermediate EFL learners' reading comprehension skill.

2. Iranian intermediate EFL learners cannot properly identify the items that function as cohesive devices (substitution, conjunction, ellipsis) in written text.

Review of Literature

According to Halliday and Hasan, the function of cohesion is to relate one part of a text to another part of the same text. Consequently, it lends continuity to the text. By providing this kind of text continuity, cohesion enables the reader or listener to supply all the components of the picture to its interpretation. Halliday and Hasan hold that cohesion in its normal form, is the presupposition of something that has gone before in the discourse, whether in the immediately preceding sentence or not. This form of presupposition is referred to as *anaphoric*. The presupposing item may point forward to something following it. This type of presupposition is called *cataphoric*. On the other hand, *exophoric* and *endophoric* presuppositions refer to an item of information outside and inside the text, respectively.

Halliday and Hasan recognize five types of cohesive devices in English and in the lexicogrammatical system of the language. They are *reference, substitution, ellipsis, conjunction,* and *lexical cohesion.* Reference, substitution, and ellipsis are grammatical; lexical cohesion is lexical; conjunction stands on the borderline between the two categories. In other words, It is mainly grammatical but sometimes involves lexical selection.

Constructionalists view language comprehension as an interactive process between the text and the person using the text. They assume that meaning does not exist in the text but becomes available to the reader as a result of his own contribution. Language users employ text in comprehension as a set of guidelines to the active (re)creation of meaning. Jonz (1987) in his explanation of the advantage(s) of adopting a constructionist point of view says:

One is able to speculate on the structure of language knowledge and on the various stages in the acquisition of such structures as well as their application to the cognitive tasks involved in comprehending.

From the above statement, it follows that constructionists emphasize the role of background knowledge as a feature of a text; and the cognitive tasks involved in the comprehension process. Below we will discuss these key points i.e. background knowledge and cognitive tasks at large. Coady (1979) presents us with a

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psycholinguistic model of reading in which he illustrates the interaction of cognitive tasks with background knowledge in a reading task.

He defines the term conceptual ability as general intellectual capacities, and process strategies as various subcomponents of reading skills which also apply to oral language. Regarding background knowledge, he believes that it will become an important variable when we notice students with Western backgrounds of some kind learn English faster, on average, than those without such kind of background.

Carrel and Eisterhold (1983) consider language background knowledge an important factor in comprehending a text; they express this importance as follows:

Efficient comprehension requires the ability to relate the textual material to one's own knowledge. Comprehending words, sentences, and entire texts involves more than just relying on one's linguistic knowledge.

Further in their article, Carrel and Eisterhold (1983) talk of two types of background knowledge: formal and informal. Formal knowledge refers to the reader's knowledge of the rhetorical organizational structures of different types of texts; content knowledge refers to the content area of a text. They also believe that reader's failure to provide the proper formal and, particularly, content knowledge (schema) would result in various degrees of non-comprehension.

Farhady (1982), in an attempt to examine the importance of learner characteristics (i.e. his schema) in relation to learner performance on ESL tests, comes up with significant differences between his subjects with different major fields. He also points out that this difference, as a variable, should be esteemed in the tests that are designed in such a way as to refrain from pushing any sort of injustice against learners in a heterogeneous class.

Discussing the cognitive processes involved in reading a text, Eisterhold (1983) distinguishes two basic modes of information processes: bottom-up and top-down. He further elaborates on how these two modes function in a schema theory model. He says:

Schemata are hierarchically organized, from most general at the top to most specific at the bottom. As these bottom-level schemata converge into higher level, more general schemata, these, too, become activated. Top-down processing, on the other hand, occurs as the system makes general predictions based on higher level, general schemata and then searches the input for information to fit into these partially satisfied higher order schemata.

From the above quotation one may infer that these two modes function separately. However, both these modes function simultaneously at all levels: the data needed to instantiate the schemata become available through bottom-up processing; top-down processing facilitates their assimilation if they are anticipated on the part of the listener or reader's conceptual expectations.

MATERIALS AND METHODS

Introduction

As it is said earlier, in the previous chapter the present study was conducted to ameliorate the pedagogical and practical effect of text cohesion recognition exercises on reading comprehension. Therefore, this part aimed at paying attention to the methodology of the research as follows: the design of the study, participants of the study, materials, procedures and the statistical analysis.

Design of the Study

The design of the study was quasi-experimental design, which is a pre-test and post-test design.

Participants

The participants of the study were 120 intermediate students both male and female. After administration of TOEFL test, 80 intermediate students were selected. They were divided into 2 groups control and experimental group. Both groups sat for the pre-test of reading comprehension to take their initial knowledge of reading comprehension ability. Then the control group received no treatment. However, the experimental group received treatment based on text cohesion recognition exercises and finally both groups sat for the posttest, which is the same reading comprehension test.

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Materials

This research scheme takes advantage of three types of tests for the sake of data collection. A TOEFL (Michigan test, 1991), not released and publicized in order to measure the subjects' current status of proficiency level. The test covered the areas of reading, grammar, and vocabulary proficiency (see Appendix A). The subjects in both groups were screened and equated as far as their proficiency levels were concerned. A pre-test of reading comprehension was given to the subjects to measure the subjects' initial differences in reading comprehension test. Finally, a posttest of reading comprehension was administered to both groups to find out the effectiveness of the treatment.

Procedure

At the beginning of the study, before starting the treatment, the participants were administered pre-test of reading comprehension to assess their subjects' knowledge of reading comprehension ability and cohesive devices identification test which was cloze test of reading comprehension with multiple- choice alternatives to assess the subjects' ability in using the cohesive devices to understand the text. There was an instructional treatment for participants of experimental group. The aim of treatment class was teaching cohesive devices (substitution, conjunction, ellipsis) on the basis of operational definition of Halliday and Hasan (1976) followed by further working on some within text examples related to the taught material in each treatment session.

Generally, the teacher started each session in experimental group as follows: first, each cohesive type was explained and illustrated at the sentence level and some examples were used for more analysis and identification of cohesive ties. Then students were assigned to practice the taught materials by identifying each cohesive type and connecting to its antecedent, substitute or conjoined part in the texts such as short stories. This procedure was followed in each session of treatment classes for Experimental group. The treatment instruction ran for 12 sessions and the allocated time for each session was 30 minutes. There was no special treatment for the participants of control group concerning teaching of cohesive devices unless some irrelevant practice (placebo) on some aspects of language with the same time allocation and the same number of session e.g. subjects were asked to read some passages and summarize the text they had already read.

Finally, participants of both experimental and control group took the same reading comprehension test as post-test at the end of course of instruction. The content of test was based on the material taught for experimental group as treatment. Students answer was marked by the researcher.

Statistical Analysis

The data will be computed through SPSS, a one way ANOVA was run to analyze the data of the study.

RESULTS

Data Analysis and Result

Introduction

As chapter 1 and 2 showed, there are pieces of evidence to support or reject the positive effects of text cohesion recognition and coherence on reading comprehension. However, does not always seem to be the case that students achieve higher understanding of texts based on knowledge of cohesion. The major aim of present study is to examine whether students participating in EFL classes could improve their L2 comprehension based on the recognition of cohesive devices as textual factors to improve reading comprehension. This chapter reports the findings of the study and provides answers to the questions that lie at the heart of the investigation.

Data Analysis and Results

In each term two separate tests were administered to examine whether there were any significant differences between the two groups. On the basis of students" scores on the pre-tests and post tests , the statistical computations of the data are shown in the Following tables : 4.1 to 4.10 and graphs A , B , C, D. what follows shows the results of the analyses to examine whether text cohesion recognition had any effect on reading comprehension .

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The Pilot Study
Term one served as a pilot study. Data obtained from the term was put into analysis through T-test. The range of scores in both groups is totally the same. The variations are from twelve to sixteen and fifteen is most frequent scoring.

Table 1: T-test for the pre-test of the pilot study

	mean	Std. deviation	Std.Erorr mean	d.f	Sig(two-Tailed)
Exp.G.	14.10	1.05	.40	9	.434
Cont.G.	13.80	1.06	.46		

Although experimental group seems to have better outcome, it is not significant at the level of $p<.05$. It can be said that there is no significant difference between the two.
Groups at the beginning of the study, Moreover, T.observed 0.4 is much lower than T.critical 1.73.
After a 12 session treatment, it seems that experimental group scored higher than the control group. The range and variation among the experimental group is more than control Group

Table 2: T-test for the post-test of the pilot study

	mean	Std. deviation	Std. Error mean	d.f	Sig(two-Tailed)
Exp.G	15.4	1.39	.54	9	.029
Cont.G	14.5	1.33	.34		

The test comparison of group means of post-test of these two classes on the pilot study Show the T-observed 2.36 which is higher than T. critical 1.73. Therefore, there is a significant difference between the experimental groups and the control groups.
The pilot study shows that the research null hypothesis was rejected in smaller sample and it is time to conduct a study with a larger population.
The Main Study
By conduction the main study and in an attempt to answer the first research question following results and scores were obtained from the performance of experimental and control groups are pre-tests. Student's scores in control group ranged from 12 to 16 .
The most frequent scores in control group 1 were fifteen and thirteen as seven and six students got them respectively. In control group 2, the most frequent score was 14 as six students scored it and the least frequent score was 12 which two students got it.
Student's score in experimental groups ranged from 12 to 16. The most frequent score in experimental group (1) was 14 as six students scored it. In experimental group (2) the most frequent score was 15 as six students scored it. And the least frequent score was 12 which one student scored it .

Table 3: Summary of pre-test statistic of four groups

	Cont1	Cont2	Exp1	Exp2
N	20	20	20	20
$\sum x$	236	238	242	243
mean	13.88	14	14.23	14.29
DF	2.75			
64/3	4.10			

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The mean differences of four groups do not show any significant difference. The total differences of four groups are not significant at P< 5 . Moreover, DF 4.10 is lower than 0.316.

For comparing the means of four groups we use as planned comparison method. The comparison begins by assigning equal weights to each four groups. This allows us to do independent comparison, that is, when there are four groups, there could only three comparisons which are independent of one another.

Table 4: weights for group comparison of pre-post test means

Comparisons	Experimental		control	
	G.1	G.2	G1	G2
G1 with G2	+1	-1	0	0
G3 with G4	0	0	+1	-1
Gps.1+2 vsGps3+4	+1	+1	-1	-1

Adopted from Hatch and Farhady(1981),see appendix A for further explanations.

Each comparison is computed by multiplying weights their respective means and adding them up. The formula is:

$\hat{C}$= W1 x + W2x2 +…WKXK
$\hat{C}$=(+1)(14.23)+(-1)(14.29)+(0)(13.88)+(0)(14)=0.07
$\hat{C}$=(0) (14.23) + (0) (14.29))+(+1)(13.88)+(-1)(14)= 0.12
$\hat{C}$=(+1)(14.23)+(+1)(14.29)+(-1)(13.88)+(-1)(14)=0.64

The values are predicted for the comparisons. Each can be tested for statistical significance of using the T. formula.

$$T.obs = \frac{\hat{C}}{\sqrt{(MSW/n)[W2\ 1+W22+… W2K]}}$$

Comparion1 → $\hat{C}$ T.obs = 0.073   Comparison2 → $\hat{C}$ T.obs=0.123
Comparion1 → $\hat{C}$ T.obs = 0.645

The statistical significant of the difference between the means in each comparison by checking the T value with the T. critical for the T distribution with appropriate degree of freedom can easily be obtained .

The degree of freedom is 32 for the first two comparison (17+17-2) and 64 for the last one (68-4). T-critical for 32 is maximum 1.69 and for 64 is less than 1.76. The results show that there is no significant difference between the control and experimental group at the beginning of the study.

The performance of students is post -test which were administered after treatment led to the following results and scores. Student,s scores in control group ranged from 12 to 16 .

The most frequent scores in control group 1 were 15 and 12 as five and four students got them respectively .In control group 2. The most frequent score was 15 as four students scored it (see table .4.9. appendix, A)

Student,s scores in experimental groups ranged from 13 to 19 . the most frequent Score in experimental group (1) and (2) was seventeen as four and five students scored it. The least frequent score in both groups was 14.

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Table 5: Summary for post test statistic of four groups

	Conl.l	Conl.2	Exp.1	Exp.2
N	20	20	20	20
$\sum x$	236	238	238	283
mean	13.88	14	16.52	16.64
Df	2.75			
64/3	4.10			

The raw data was then put into analysis by ANOVA. Below you will observe the improvement of experimental groups after receiving treatment while control groups as shown in table 4.11 did not show much improvement.

Since F-ratio is larger than $1 \rightarrow$ F- ratio: 20.36. So there is a meaningful among the means. But determine how significant the difference is. we should compare the means of four groups. Each component is computed by multiplying weights by their respective means and adding them up. The formula is :

$\hat{C}$= W1K +W2X2 +…. WKXK
$\hat{C}$=0.12 $\hat{C}$=0 $\hat{C}$=5.16

The values are predicted for the comparisons each can be tested for statistical significant of using the T-formula.

$$T.obs = \frac{\hat{C}}{\sqrt{(MSW/n)[W2\ 1+W22+… W2K]}}$$

Comparison 1 $\rightarrow$ $\hat{C}1$ T.obs = 0.17   comparison 2 $\rightarrow$ $\hat{C}2$ T.obs = 0.00
Comparison 3 $\rightarrow$ $\hat{C}3$ T.obs = 5.10

The degree of freedom is 32 for the first two comparisons (17+17-2) and 64 for the last one (68-4). T-critical for 32 is maximum 1.69 and for 64 is less than 1.67.
($\hat{C}1$ and $\hat{C}2 \rightarrow 0$ and 0.17< 1.69) but ($\hat{C}1 \rightarrow 5.1 > 1.67$).

The results indicate that there is no significant difference between the two experimental groups or between the two control groups. However, there is a significant difference between the control and experimental groups. The experimental groups outperformed significantly in comparison with control group.
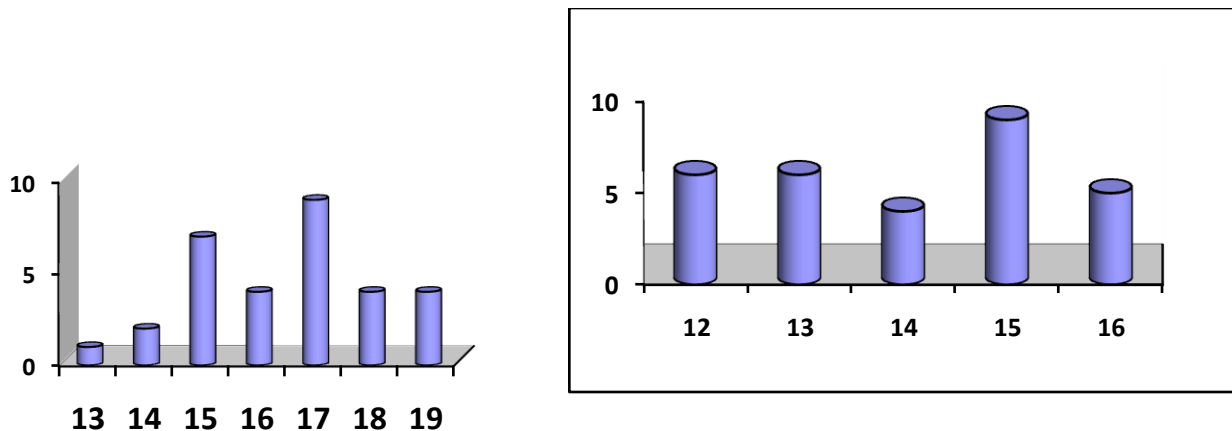
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Figure 1: Score frequency graph of experimental groups in post-test

Figure 2: Score frequency graph of the control groups in post-test

The mean of experimental group is 16.4 and that of control group is 14.7. The standard deviation for the experimental group is 1.69, and that of the control group 1.16. Both The range of scores and the standard deviation indicate that there is more variation among the subject's scores of the control group as compared with experimental group. Considering the obtained data, it can be claimed that the subjects In experimental group performed more homogenously than those of the control group.

Therefore, it can be concluded that this homogeneity is due to the treatment given to the experimental group. The distribution of the scores of both experimental and control group is positively skewed, though the former is more positively skewed (0.666 and 0.403, respectively). This shows that the scores of experimental group have been closer to each other than those of control group. In addition, the distribution of the scores obtained from the application of the test to both groups is flat (EG=0.88 and CG=0.67) .This, too , indicates the fact that there is a rather higher variation among the subjects' scores of the control group. In all, putting all descriptive statistics together, it can be assumed that the performance of the experimental group has improved due to the treatment, and subjects in this group performed more homogenously than those in control group.

In order to answer the second research question data analysis and statistical operations of scores and means obtained from pre-post tests were conducted through one way ANOVA.The result of data analysis and statistical computations led to what you can observe through following tables and graphs.

Students` scores in control groups ranged from 13 to 17. The most frequent scores in control group (1) were 15 and 16 as five and six students got them respectively. In control group (2) the most frequent score was 15 as seven students scored it. Student's scores in experimental groups ranged from 13 to 17. The most frequent Score in experimental group (1) and (2) were fifteen and sixteen as six and seven Students scored it. The least frequents score in both groups was 13.

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Table 6: Summary for pre-test statistic of four groups

	Cont.l	Cont.2	Exp.1	Exp.2
N	20	20	20	20
$\sum x$	261	258	266	265
mean	15.35	15.23	15.64	15.58
DF	2.75			
64/3	4.10			

The mean differences of four groups do not show any significant difference. The total differences of four groups are not significant at P<5.

By computing the weights for group comparison of pre-test the following results are

Obtained:

Each comparison is computed by multiplying weights by their respective means and adding them up . the formula is :

$\hat{C}$= W1x +W2x2 +…. WKXK

$\hat{C}$=0.06 $\hat{C}$=0.12 $\hat{C}$=0.64

The values are predicted for the comparisons. Each can be tested for statistical significance of using the T. formula.

$$T.obs = \frac{\hat{C}}{\sqrt{(MSW/n)[W2\ 1+W22+… W2K]}}$$

Comparison **1** → $\hat{C}$ T.obs = 0.495   comparison **2** → $\hat{C}$ T.obs = 0.990   Comparison **3** → $\hat{C}$ T.obs = 0.264

The pre-test results of four groups were descriptively analyzed, frequencies, percentages, and means were computed. A comparison of weights for group comparison of pre-test was conducted to examine the significance between the means of pre-tests in relation to identification and function recognition of cohesive devices.

The results revealed that there is no significant difference between the two control groups or between the experimental groups. Moreover, there was no significant difference between the control and experimental group at the beginning of study.

Students` post-test scores in control groups ranged from 13 to 17. The most frequent Scores in control group (1) were 15 and 16 as six students got them respectively.

In control group (2) the most frequent score was 16 as seven students scored it .

Students` post –test scores in experimental groups ranged from 14 to19. The most frequent score in experimental group (1) and (2) was seventeen as five students scored it. The least frequent score in both groups was 14.

Table7: Summary for pre-test statistic of four groups

	Cont.l	Cont.2	Exp.1	Exp.2
N	20	20	20	20
$\sum x$	261	258	266	265
mean	15.35	15.23	15.64	15.58
Df	2.75			
64/3	4.10			

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Since F-ration is larger than $1 \rightarrow$ F-ratio = 12.29. So this is meaningful difference among the means, but to determine how significance the difference is, there should be a comparison of means of four groups as follows :

Computing the comparison of weights for group comparison of post-test means led to

Following results:

Ĉ= W1K +W2x2 +…. W K X K

Ĉ=0.71   Ĉ=0.06   Ĉ=2.53

The values are predicted for the comparison each can be tested for statistical significance of using the T-formula.

$$T.obs = \frac{\hat{C}}{\sqrt{(MSW/n)[W2\ 1+W22+\dots W2K]}}$$

Comparison 1 $\rightarrow$ Ĉ1 T.obs = 1.57   comparison 2 $\rightarrow$ Ĉ2 T.obs = 0.23

Comparison 3 $\rightarrow$ Ĉ3 T.obs = 5.60

The degree of freedom is 32 for the first two comparisons (17+17-2) and 64 for the last one (68-4). T-critical for 32 is maximum 1.69 and for 64 is less than 1.67.

(Ĉ1 and Ĉ2 $\rightarrow$ 0.023 and 1.57 < 1.69) but (Ĉ3 $\rightarrow$ 5.6>1.67).

The post-test results of four groups were analyzed. Frequency, mean, and percentages were calculated and compared. ANOVA analysis was used to compare the significance of post-test score means. Significant differences were found between the means of experimental and control group on identification and function recognition of cohesive devices. Although there was no remarkable difference between the two experimental or two control groups. The experimental groups outperformed in comparison with control groups.
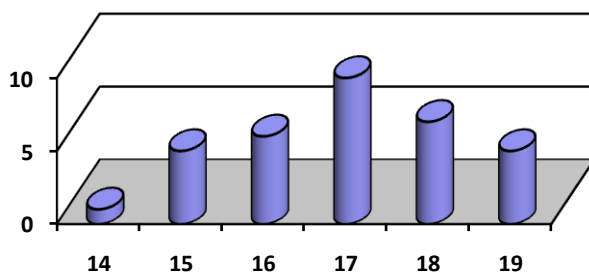

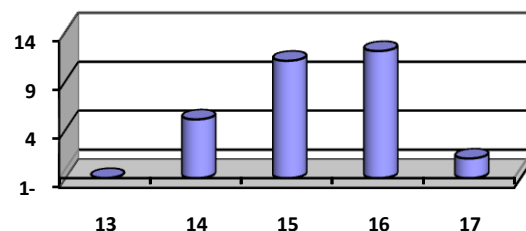**Figure 3: Score frequency graph of experimental groups in post-test**

Figure 4: Score frequency of the control groups in post-test

Implication
Pedagogical Implications
The present study examined the impact of text cohesion recognition on second language reading comprehension. Findings indicated that there was a significant difference between the experimental groups, who received the treatment on English text cohesion recognition, and the control groups in terms of reading comprehension as measured by posttests. It is obvious that for discourse to be comprehensible and cohesive, language learners have to know who does what to whom when and where. Information about entities, people and objects, time, space and actions has to be carefully tracked and managed from one segment of utterance to the next (Gullberg, 2006). The students participated in this study used their textual competence as an aid to make sense of written texts since textual competence contains the knowledge of connections for joining utterances together to form a comprehensible text. Textual competence including the knowledge of cohesion and coherence is an essential ability for English as foreign language learners to comprehend the discourse effectively (Bachman, 1990; Mu, 2006).

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