CHAPTER IV

RESEARCH FINDINGS

This part presents the research findings and verification of the hypothesis of the research. The primary data is used as the source of the decision making whether or not the indirect corrective feedback was effective on the students' writing accuracy. The scores obtained from the posttest were calculated by means of statistical procedures. This chapter also presents the result of grammatical sensitivity test, the fulfillment of the assumption, the data analysis, and hypothesis testing.

A. The Result of the Pretest of the Experimental and Control Groups

The pretest result was taken from the students' writing test before the treatment. The form of the pretest results was in the form of the students' writing accuracy score. The table below shows the summary of the result of the pretest of both experimental and control groups.

Table 4.1 Pretest Mean Score of the Experimental and the Control Group

Group	N	Min Score	Max Score	Mean	Std Dev
Experimental	30	63	74	67.93	3.769
Control	29	63	72	66.97	3.053

Table 4.1 above demonstrated that among 30 students of the experimental group, the maximum score was 74 and the minimum score was

63. Meanwhile, among 29 students of the control group, the maximum score was 72 and the minimum score was 63. The mean score of the pretest of the experimental group was 67.93, while the mean score of the control group was 66.97. There was a slightly difference between the mean score of the experimental and control group. The difference was only 0.96 points. The slight difference means that both groups were having equal characteristics. In this case was the students' ability was equal so that they were feasible to follow the study.

The figure 4.1 below shows the difference mean score of the pretest of both groups.

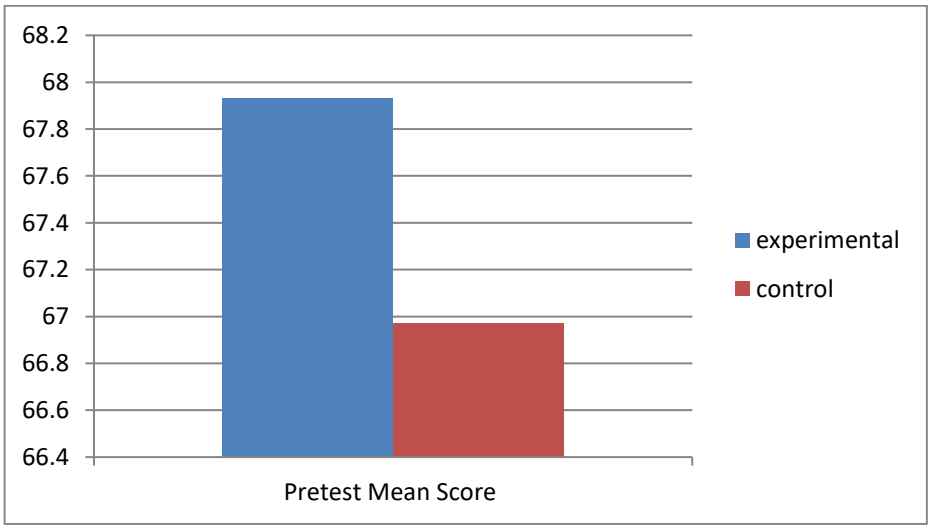

Figure 4.1 The Mean Difference of the Pretest

The final scores of the pretest were recapitulated from two different raters who rated the students' writing accuracy. The total score were obtained by summing up the three components of writing accuracy from each rater. The average score from the raters was calculated and made as the final score for

students' writing accuracy performance. Table 4.2 below presents the mean difference among the writing components in pretest.

Table 4.4 The Mean Difference of the Pretest of Experimental and Control Group

Group	Writing Accuracy Components		
	Grammar	**Vocabulary**	**Mechanic**
Experimental	3.61	2.18	2.5
Control	4.05	2.17	2.52

The Figure 4.2 below showed the mean difference among the writing components for both experimental and control groups.

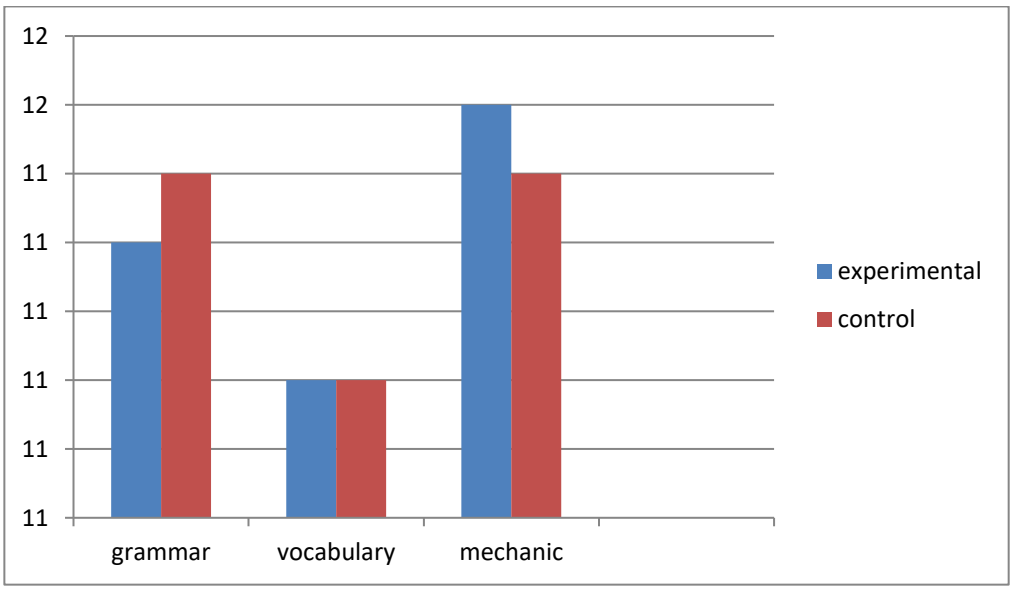

Figure 4.2 The Mean Difference among Writing Accuracy Components

The figure above shows that for each component of writing accuracy, the experimental group got higher score than the control group, yet there was only slight difference.

B. The Result of the Posttest of the Experimental and Control Groups

The posttest result was taken from the students' writing test after the treatment being given. The form of the posttest results was in the form of the students' writing accuracy score. The score from the posttest were the main data in this study. Below is the table showing the summary of the result of the posttest of both experimental and control groups.

Table 4.3 Posttest Score Summary of the Experimental and the Control Group

Group	N	Min Score	Max Score	Mean	Std Dev
Experimental	30	66	76	70.80	3.242
Control	29	65	74	68.41	2.693

Table 4.3 above demonstrated that among 30 students of the experimental group, the maximum score was 76 and the minimum score was 66. Meanwhile, among 29 students of the control group, the maximum score was 74 and the minimum score was 65. The mean score of posttest of experimental group was 70.80, while the mean score of the control group was 68.41. There was a significance difference between the mean score of the experimental and control group. The difference was 2.39 points. It shows that the difference was significant between the experimental and control group as a result of the treatment being given.

The figure 4.3 below shows the difference mean score of the pretest of both groups.

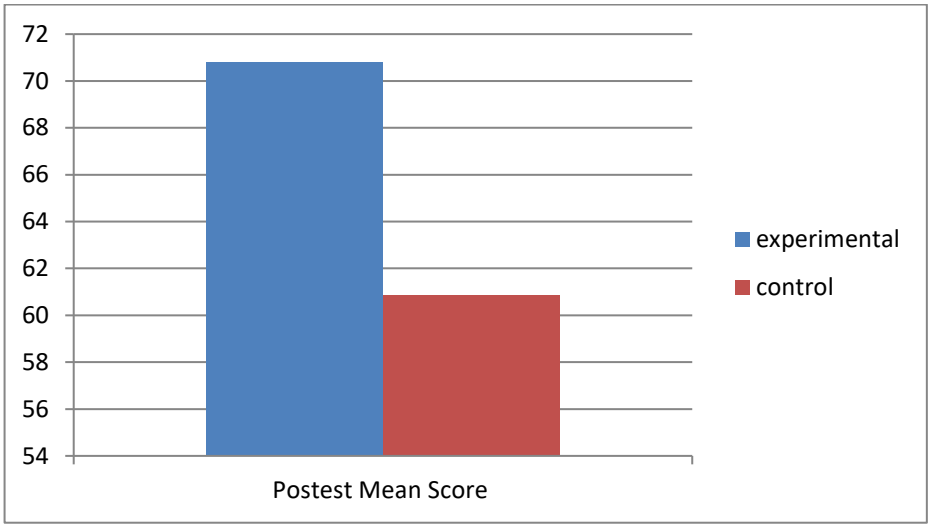

Figure 4.3 The Mean Difference of the Pretest

The final scores for the posttest were recapitulated from two different raters who rated the students' writing accuracy. The total score were obtained by summing up the three components of writing accuracy from each rater. The average score from the raters was calculated and made as the final score for students' writing accuracy performance. Table 4.2 below presents the mean difference among the writing components in posttest.

Table 4.4 The Mean Difference of Experimental and Control Group

Group	**Writing Accuracy Components**		
	Grammar	**Vocabulary**	**Mechanic**
Experimental	4.029	2.765	2.559
Control	3.941	2.676	2.500

The Figure 4.3 below shows the mean difference among the writing components for both experimental and control groups.

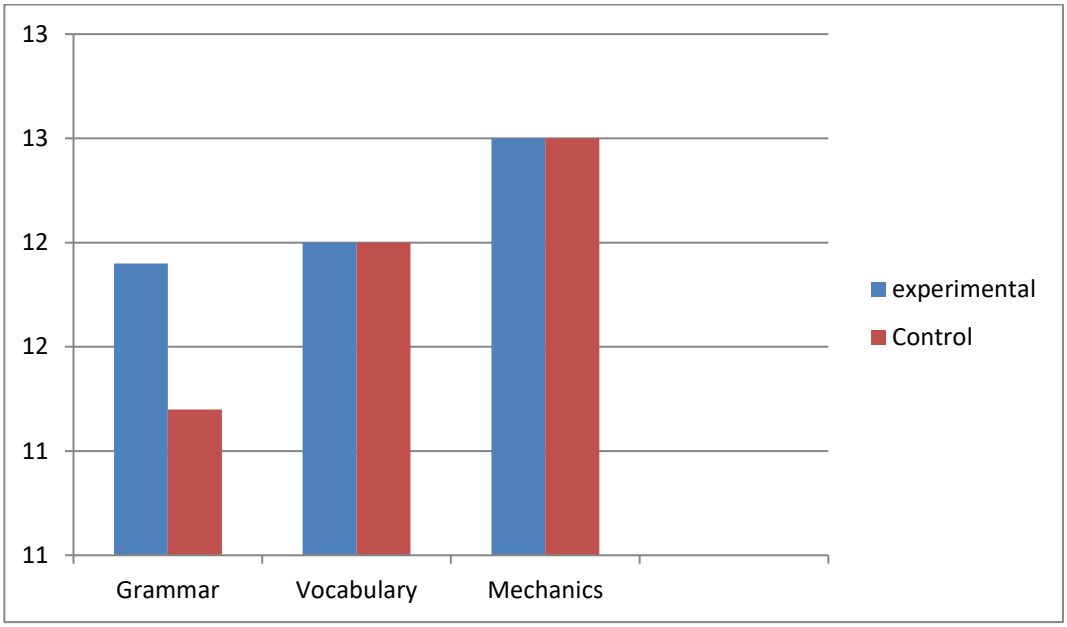

Figure 4.4 The mean difference among the writing accuracy components

The figure above shows that for each component of writing accuracy, the experimental got higher score than the control group. Experimental group got better score on grammar, vocabulary, as well as mechanics.

C. The Result of the Grammatical Sensitivity Test

The grammatical sensitivity test was conducted in both experimental and control group in the beginning of the treatment. It resulted that in experimental group there were 18 students had high grammatical sensitivity level; and there were 12 students were categorized into low level of grammatical sensitivity. While, in control group, there were 18 students had high level of grammatical sensitivity, and 11 students were low level of grammatical sensitivity. The full description can be seen on Appendix 26.

Table 4.5 below showed the summary of the result of the result of grammatical sensitivity level of the students of both experimental and control group.

Table 4.5 The Result of Grammatical Sensitivity Test

Group	N	Level of Grammatical Sensitivity	
		High	Low
Experimental	30	18	12
Control	29	18	11

D. The Fulfillment of the Statistical Assumption

Statistical assumption was needed to be fulfilled before deciding the appropriate statistical procedure to be conducted in order to test the research hypotheses. There were two statistical assumptions that were normality testing and homogeneity testing which were needed to be conducted to fulfill the assumption. These two tests were required when the statistical hypothesis was using Independent T-test and Two-way ANOVA test.

1. Normality Testing

The first statistical assumption was normality testing. The data were normally distributed if only the value of normality test was greater than the level of significance, $\alpha = .05$. Table 4.6 below demonstrates the result of normality testing using SPSS v23.

Table 4.6 The Computation of Normality Testing of Writing Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
posttest experimental	,140	29	,156	,924	29	,039
posttest control	,148	29	,102	,928	29	,048

a. Lilliefors Significance Correction

Based on the table above, the significance value (*Sig*) for normality test Kolmogrov-Smirnov for the result of writing accuracy test of both group were greater than the level of significance, α = .05. The significance value for experimental group was .156, while the significance value of control group was .102. Those were gretaer than α = .05. It means that the data were normally distributed. The complete result of normality testing can be seen in Appendix 28.

Further, the normality test was also conducted to test the result of the grammatical sensitivity testing. The data were normally distributed if only the value of normality test was greater than the level of significance, α = .05. Table 4.7 below demonstrates the result of normality testing using IBM SPSS v23.

Table 4.7 The Computation of Normality Testing of Grammar Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Experimental High	,176	11	,200*	,912	11	,256
Experimental Low	,191	11	,200*	,863	11	,064
Control High	,195	11	,200*	,851	11	,044
Control Low	,191	11	,200*	,863	11	,064

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on the table above, the significance value (*Sig*) for normality test Kolmogrov-Smirnov for the result of grammatical sensitivity test of both group were greater than the level of significance, α = .05. The significance value for the high level grammatical sensitivity of the experimental group was .200, while the significance value of the low level of the experimental was .200. Moreover, the significance value for the high level grammatical sensitivity of the control group was .200, while the significance value of the low level of the control was .200. Those significance values were gretaer than α = .05. It means that the data were normally distributed. The complete result of normality testing can be seen on appendix 28.

2. Homogeneity testing

The second statistical assumption was homogeneity testing. The data were called homogenous if the significance value (*p* value) was greater

than the level of significance, α = .05. Table 4.7 below shows the result of the computation of Levene's Test for the result of writing test by using SPSS v.23.

Table 4.8 The Computation of Homogeneity Testing of Writing Test

Test of Homogeneity of Variances

score

Levene Statistic	df1	df2	Sig.
1,336	1	57	,252

The table above shows that the significance value was .252. It was greater than the value of significance level, α = .05. In this case, it could be said that the data were called homogenous. For complete result of the computation, see Appendix 29.

Further, the homogeneity testing was also employed to test the homogeneity of the result of the grammatical sensitivity test. The data were called homogenous if the significance value (*p* value) was greater than the level of significance, α = .05. Table 4.9 below shows the result of the computation of Levene's Test for the result of writing test by using SPSS v.23.

Table 4.9 The Computation of Homogeneity Testing of Grammar Test

Test of Homogeneity of Variances

SCORE

Levene Statistic	df1	df2	Sig.
1,033	1	57	,314

The table above shows that the significance value of the grammatical sensitivity test was .314. It was greater than the value of significance level, $\alpha = .05$. In this case, it could be said that the data were called homogenous. For complete result of the computation, see Appendix 29.

E. Data Analysis

As aforementioned above, the data in this study were normally distributed and were homogenous. Hence, parametric statistic called Independent T-test and Two-way ANOVA were appropriate to be conducted to test the hypotheses. Research questions 1 was analyzed using independent T-test, while research question number 2 and 3 were analyzed using Two-way ANOVA since the students were categorized based on their grammatical sensitivity level to see whether or not there was a simple effect of the level of grammatical sensitivity on the students' writing accuracy result. All of the computations were using statistical program called IBM SPSS v.23.

For the first hypothesis, the data obtained from posttest was computed using independent T test since the samples were coming from two different groups and it only tested whether or not there was significant difference score on writing accuracy of both group. Table 4.8 below shows the result of the statistical computation.

Table 4.10 The Result of Computation for the First Hypothesis

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
score	Equal variances assumed	1,336	,252	3,070	57	,003	2,386	,777	,830	3,943
	Equal variances not assumed			3,080	55,753	,003	2,386	,775	,834	3,939

In T-test for independent samples, the F-test must be done before the t-test. F-test was used to know whether the variances or standard deviations of two groups were equal. The result of F-test showed that p-value (shown in *Sig*) was 0.252 and it was bigger than the $\alpha = 0.05$. As consequence, the null hypothesis of the F test was not rejected, and then the *equal variances assumed* was used.

Based on the result of the F-test, the T-test with equal variances assumed was used. The t value was 3.070 with the df = 57. The p-value for two-tailed was .003, and it was lesser than the $\alpha = 0.05$. It means that there was significant difference score in writing between the students taught by using indirect corrective feedback and the students taught by using direct corrective feedback. Hence, it could be concluded that the first null hypothesis (H_{01}) was rejected. The complete computation can be seen in Appendix 30.

Moreover, to check the second hypothesis, the students of both experimental and control group were categorized into two; those who had high level of grammatical sensitivity and those who had low level of grammatical sensitivity. Table 4.9 below shows the result of computation for those who had high level of grammatical sensitivity.

Table 4.11 The Computation for the Second Hypothesis

Source	Type III Sum of Squares	df	Mean Square	F	*Sig.*
Grammar	**221.320**	**1**	**221.320**	**45.797**	**.000**

Based on the statistical computation, it was found that *p*-value was .000. It means that *p*-value was lesser than the level significance $\alpha = 0.05$. It means that there was significance different score on students' writing accuracy based on the different level of grammatical sensitivity. Thus, it could be concluded that the second null hypothesis (H_{02}) was rejected. The complete computation can be seen in Appendix 32.

The statistical computation also found that the mean score of the students who had high level of grammatical sensitivity got mean score 71.17, while the students with low level of grammatical sensitivity got mean score 67.22. The students with high level of grammatical sensitivity got higher score than the students with low level of grammatical sensitivity. The difference score was 3.95 points. It once again showed that there was significance different score on students' writing accuracy based on the different level of grammatical sensitivity.

Furthermore, the statistical analysis was employed to test the third hypothesis. The statistical analysis used was Two-way ANOVA with interaction to test whether or not there was interaction between corrective feedback and the students' level of grammatical sensitivity. Below presents the summary of the computation.

Table 4.12 Computation Summary of the Third Hypothesis

Source	Type III Sum of Squares	df	Mean Square	F	*Sig.*
Group*grammar	**17.266**	**1**	**17.266**	**3.573**	**.064**

Based on the computation of the interaction between corrective feedback and the students' level of grammatical sensitivity, it was found that p-value was .064. It means that *p*-value was greater than the level significance α = 0.05. Therefore, it means that there was no interaction between indirect corrective feedback and the students' level of grammatical sensitivity. Thus, it could be concluded that the third null hypothesis (H_{03}) was not rejected. The complete computation can be seen in Appendix 33.

F. Hypothesis Testing

Before testing the hypotheses based on the result of the analysis of Independent T-test and Two-way ANOVA, the researcher needed to state the null hupotheses. As what have been stated in chapter III, the hypotheses of this study were as follows:

1. Ho_1 : $\mu A_1 = \mu A_2$ (there is no significant difference score in writing between the students taught by using indirect corrective feedback and those taught with direct corrective feedback)

   Ha_1 : $\mu A_1 > \mu A_2$ (The students who are taught using indirect corrective feedback have significantly better writing accuracy skill than those taught using direct corrective feedback)

2. Ho_2 : $\mu B_1 = \mu B_2$ (There is no significant difference score in writing accuracy of students based on the different level of grammatical sensitivity)

   H_{a2} : $\mu B_1 > \mu B_2$ (The student with high level of grammatical sensitivity have significantly better writing than those with low level of grammatical sensitivity)

3. H_{03} : A x B = 0 (There is no interaction between indirect corrective feedback and students' grammatical sensitivity level)

   H_{a4} : A x B > 0 (There is an interaction between indirect corrective feedback and students' grammatical sensitivity level)

The null hypothesis would be rejected if the significant value was lesser than the level of significance $\alpha = 0.05$ (p-value $\leq .05$). It was based on the suggestion from Ary *et.al.,* (2006:179) that .05 was acceptable in the field of education. The rejection of the null hypothesis means that the alternative hypothesis was accepted. Meanwhile, if the significant value was bigger than the level of significance $\alpha = 0.05$ (p-value $\geq .05$), then it means that there was no enough evidence to reject the null hypothesis so that the alternative hypothesis was not accepted.

To test the first hypothesis Ho_1:$\mu A_1 = \mu A_2$ stating that there is no significant difference score in writing between the students taught by using indirect corrective feedback and those taught with direct corrective feedback, the researcher employed the result of the analysis of independent T test. The

result demonstrate that p-value was .003, and it was lesser than the $\alpha = 0.05$. It means that there was significant difference score in writing accuracy between the students who taught by using indirect corrective feedback and those taught with direct corrective feedback. Hence, the first null hypothesis (H_{01}) was rejected.

To test the second hypothesis, Ho_2:$\mu B_1 = \mu B_2$ stating that there is no significant difference score in writing accuracy of students based on the different level of grammatical sensitivity, the researcher employed the result of the analysis of Two-way ANOVA. The p-value was .000, and it was lesser than the $\alpha = 0.05$, so the null hypothesis was rejected. It means that there is significant difference score in writing accuracy of students based on the different level of grammatical sensitivity. To sump, the second null hypothesis (H_{02}) was rejected and then the alternative hypothesis (H_{a2}) was not accepted.

Last, to test the third hypothesis; H_{03}: A x B = 0 stating that there is no interaction between indirect corrective feedback and students' grammatical sensitivity level, the researcher employed the result of the analysis of Two-way ANOVA with interaction. The result showed that p-value was .064. It means that p-value was greater than the level significance $\alpha = 0.05$. Thus, there was no enough evidence to reject the third null hypothesis (H_{03}). It means that there was no interaction between corrective feedback given on the students' writing accuracy and the students' levels of grammatical sensitivity. In a word, it can be said the third null hypothesis (H_{03}) was not rejected.