

## CHAPTER IV

### RESEARCH FINDINGS AND DISCUSSION

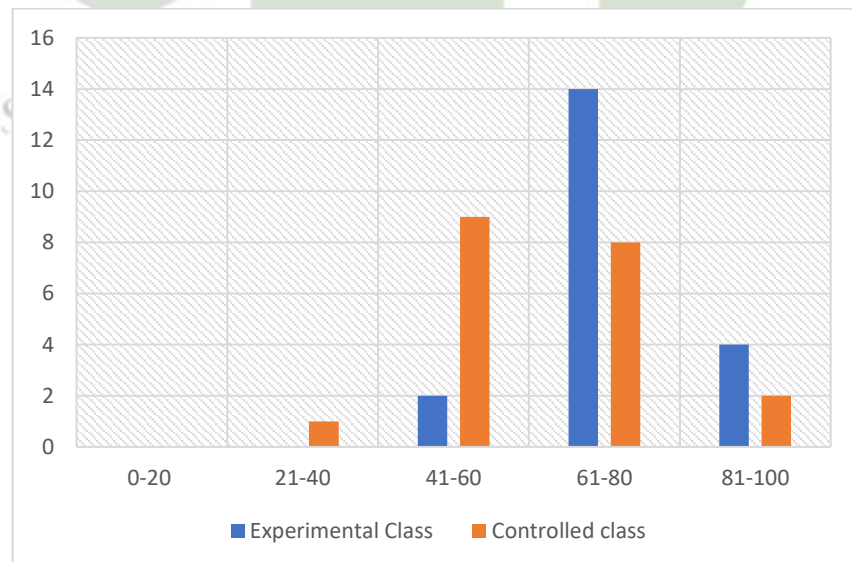
This chapter presents the findings of the study in descriptive statistics, the t-test result including the hypotheses test, the effect size formulation, and the discussion of the study.

#### 4.1. Data Description

The researcher obtained data for their study by conducting assessments on two distinct sets of students: one from the experimental class (VII-A) and the other from the control class (VII-B). They administered a test to both groups before any intervention took place, referred to as the pre-test, and subsequently conducted another test after the intervention had concluded, known as the post-test. The pre-test occurred during the initial class session, while the post-test was administered during the final class meeting.

##### 4.1.1. The Pre-Test Score

Figure 4.1 provides a visual representation of the pre-test results for the seventh-grade students in both the experimental and control classes at MTs Al-Abrar Sihuik-huik for the academic year 2023-2024. Each class had a total of 20 students.

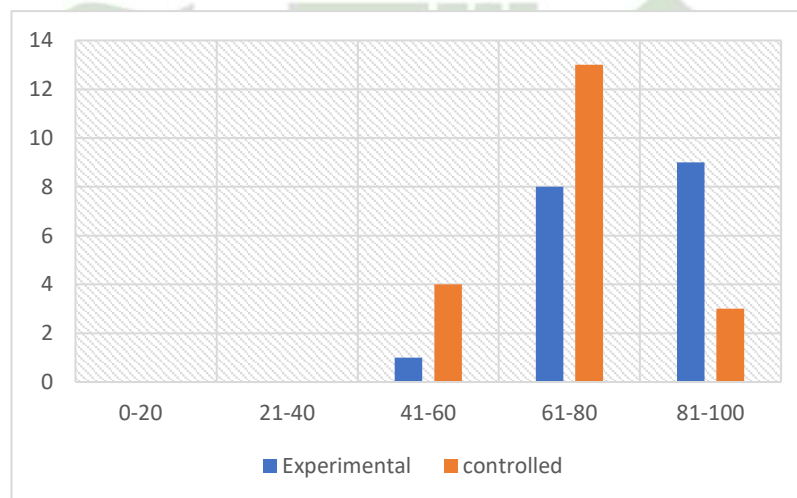


**Figure 4.1 Student's Pre-Test in Experimental and Controlled**

Based on the figure 4.1 above, it was found that there 1 students got 0-40 scores for controlled class and 0 for experimental class as the lowest score for pre-test. In 41-60 scores, it was found that there was 2 student of Experimental class and 9 students of controlled class who were in range score. Furthermore, there were 14 students of experimental class and 8 students of controlled class in score 61-80. Then in 81-100 scores there were 4 students of experimental class and 2 students of controlled class. (The full data of the pre- test score in experimental and controlled classes can be seen in appendix).

#### 4.1.2. The Post-test Score

Figure 4.2 illustrates the post-test scores of seventh-grade students at MTs Al-Abrar Sihuik-huik during the academic year 2023-2024. In this study, there were 20 students each in both the experimental and controlled classes.



**Figure 4.2 The Student's Post-Test Experimental and Controlled class**

Based on the data presented in Figure 4.2, we can observe significant variations in post-test scores between the experimental and controlled classes for seventh-grade students at MTs Al-Abrar Sihuik-huik during the academic year 2023-2024. Firstly, in the lowest score range (0-20), none of the students from either the experimental or controlled class obtained scores within this bracket, indicating that no students struggled to this extent.

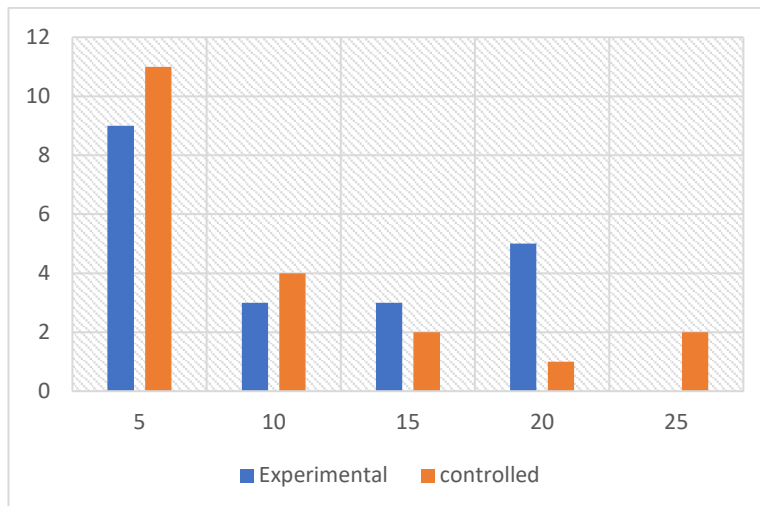
Similarly, in the 21-40 score range, there were no students from either class who managed to secure scores in this particular range, suggesting that the difficulty level of the test exceeded the capacity of the students in both groups. The 41-60 score range saw a slight difference between the two classes. One student from the experimental class and four students from the controlled class achieved scores within this range. This implies a marginally better performance by the controlled class in this mid-level score bracket.

However, a notable trend emerged in the 61-80 score range, where the majority of students in both classes fell. Specifically, eight students from the experimental class and thirteen students from the controlled class scored within this range. This suggests a more balanced performance among students in this segment, with the controlled class having a slightly higher number of students in this score range. In the highest score range of 81-100, it is apparent that the experimental class outperformed the controlled class. Eleven students from the experimental class achieved scores within this range, while only three students from the controlled class reached this level of performance.

To summarize, a clear disparity in post-test scores between the experimental and controlled classes is evident from the data. The controlled class demonstrated slightly better performance in the 41-60 score range, while the experimental class excelled in the 81-100 score range. These findings highlight the need for further analysis to understand the factors contributing to these score differences and the implications for the teaching methods employed in the experimental class classes.

#### **4.1.3. The Gained Score**

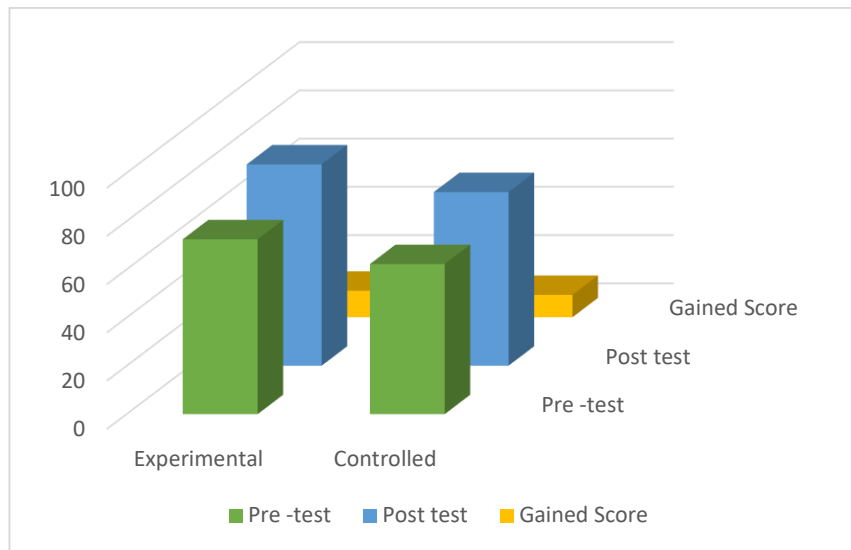
The gained score represents the discrepancy between the post-test and pre-test scores. Figure 4.3 displays the gained scores in the post-test for both the experimental and controlled classes in the seventh grade of MTs Al-Abarar Sihuik. Both groups consisted of 20 students each.



**Figure 4.3 Students' Gained Score in Experimental and Controlled classes**

Based on the data presented in Figure 4.3, we observed certain patterns in the gained scores of students in both the experimental and control classes for the seventh grade at MTs Al-Abarar Sihuik. In the experimental class, the lowest scores recorded ranged from 5 to 10, with 12 students falling within this category. Conversely, in the control class, 15 students achieved scores in the same range. Among those who achieved a score of 15 points, 3 students were from the experimental group, while 2 students belonged to the control group. Moreover, 5 students in the experimental class and 1 student in the control class attained a score of 20 points. Intriguingly, no students in the experimental group reached a score of 20 points, while 2 students in the control group managed to do so. For more comprehensive data on post-test scores in both the experimental and control classes, you can refer to Appendix IV. These findings provide valuable insights into the performance of students in the context of our research.

To make it easier to understand the overall improvement in scores before and after the treatment, the researcher created a chart. This chart is based on the average scores of the pre-test, post-test, and the scores gained during the study. It provides a clearer picture of the final results of the scores. You can see the chart below.



**Figure 4.4 Mean Score of Pre -Test, Post- Test and Gained Score of Experimental and Controlled**

As illustrated in Figure 4.4, there's a noticeable enhancement in scores in both the experimental and control classes. This improvement becomes evident when we compare the average scores of the pre-tests and post-tests, as well as when we analyze the scores gained by students in both groups. In more detail, the average pre-test score in the experimental class was 72.5, while in the control class, it was 62.25. Following the implementation of the treatment, the average post-test score for the experimental class increased significantly to 83.5, whereas in the control class, it went up to 72.

Additionally, when we delve into the scores gained by students, we find that in the experimental class, the average gained score was 11, while in the control class, it was 9.5. This data provides clear evidence that both groups demonstrated improvements in their scores, with the experimental group generally exhibiting a higher degree of improvement compared to the control group. These results are a crucial aspect of our research, emphasizing the effectiveness of the interventions and their impact on student performance.

## 4.2. Data Analysis

In this research, the researcher conducted three main types of analysis. Firstly, they examined the initial data by running tests to check for normality. Secondly, they conducted hypothesis tests. Lastly, they drew conclusions based on the results of these hypothesis tests.

### 4.2.1. Normality Test

In the context of this research, a normality test was administered using the Lilliefors method via SPSS V23. This test holds a crucial role as it serves as a prerequisite for conducting the t-test. Its primary objective is to ascertain whether the data collected from both classes adheres to a normal distribution pattern. The researcher diligently applied this test both before and after the experimental treatment. The criterion for determining normal distribution is based on specific parameters. When the significance score (Asymp. Sig. 2 tailed) exceeds 0.05 or if the observed L value falls below the critical L value, considering a sample size (n) of 20 for each class, it suggests that the data conforms to a normal distribution pattern. This assessment is pivotal as it forms the foundation for conducting subsequent statistical analyses, ensuring the validity and reliability of the research findings. The normality test result can be seen below :

**Table 4.1**  
**Normality of Pre-Test**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pre- Test Expe	.153	20	.200*	.953	20	.415
Pre- Test Control	.122	20	.200*	.959	20	.523

a. Lilliefors Significance Correction

It is clear from table 4.1 above that normalcy is important. The significant value of the experimental class and controlled class, which is 0.200, is evident from Lilliefors' table. The values are considerably lower than those calculated using the Kolmogorov-Smirnov table, which has critical points of  $20=0.275$ . Additionally, the significance level is higher than 0.05. Furthermore, it can be deduced that both the experimental and controlled classes' pre-test results follow a normal distribution.

**Table 4.2**  
**Normality of Post- Test**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
post test exp	.158	20	.200 <sup>*</sup>	.918	20	.089
post test control	.139	20	.200 <sup>*</sup>	.941	20	.255

a. Lilliefors Significance Correction

Based on the data presented in Table 4.2, it's notable that the significance values for both the experimental class and the control class stand at 0.200. These values are significantly lower than the critical value specified in the Kolmogorov-Smirnov table, which is 0.297 for a sample size of 20. Additionally, the significance scores (Asymp. Sig. 2 tailed) exceed the 0.05 threshold. Consequently, it can be confidently concluded that the post-test scores in both the experimental and control classes adhere to a normal distribution pattern. For a more comprehensive understanding of these findings, the researcher has thoughtfully included the results of the normality test within the frequency distribution of pre-test and post-test scores for both the experimental and control classes in Appendix V.

#### 4.2.2. Homogeneity Test

Following the normality test results, the subsequent phase involves conducting a homogeneity test. This test is performed to determine if the data from both groups exhibit similar variances or not. Essentially, it seeks to assess whether the samples in both classes can be considered similar in terms of their data distribution. The homogeneity test was carried out using the Levene statistic test through SPSS V23. Data is considered homogeneous if the significance level of the test results exceeds 0.05. This test is crucial as it helps ensure that the data sets being compared are comparable and have similar variations, which is a key assumption in various statistical analyses. The description can be seen as follow :

**Table 4.3**  
**Test of Homogeneity of Pre-test Variances**

**Test of Homogeneity of Variances**

Result of the students

Levene Statistic	df1	df2	Sig.
2.828	1	38	.101

As indicated by the information presented in Table 4.3, the significance level associated with the pre-test results for both the experimental and control classes is reported as 0.101. This value exceeds the 0.05 threshold, which is a critical point. This outcome suggests that both the experimental and control classes exhibit comparable variances, demonstrating homogeneity between the two groups. In other words, the data shows that there are no significant differences in variances between these classes, which is an essential condition for certain statistical analyses.

**Table 4.4**  
**Test of Homogeneity of Post-Test Variances**

**Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
1.393	1	38	.245

Based on the data in Table 4.4, the significance level associated with the post-test results for both the experimental and control classes is reported as 0.245. This value exceeds the 0.05 threshold, indicating that the post-test data in both the experimental and control classes is homogeneous. In simpler terms, there are no significant differences in variances between these classes when it comes to the post-test data.

#### **4.2.3. T-Test**

Following the assessment of normality and homogeneity, the researcher employed a t-test using SPSS v23. This analysis aimed to determine the significance of the disparity between the experimental and control groups. The chosen significance level for the t-test was used to establish empirical evidence



regarding the influence of the Hello Talk application on students' vocabulary proficiency. The data used for this analysis consisted of the scores achieved by both the experimental and control groups. The outcome of the t-test is detailed below:

**Table 4.5**  
**The Result of T-Test from Experimental and Controlled class**

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
The result of the study	Experimental	20	83.50	9.611	2.149
	Controlled	20	72.00	13.119	2.933

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.393	.245	3.162	38	.003	11.500	3.636	4.138	18.862
Equal variances not assumed			3.162	34.834	.003	11.500	3.636	4.116	18.884

Based on the table 4.6 above, it was found that there was a significant different between experimental class and controlled class. It can be seen from the group statistics which presents the mean (M) of gained score in controlled is 11 while the mean (M) of gained score controlled class is 9.75. Then, the standard deviation (SD) of gained score in experimental class is 6.40 while in controlled class is 6.78.

#### 4.2.4. Hypothesis Test

In order to know the result of the result of the researcher used statistical hypothesis test with the criteria as follows :

- a.  $H_a$  is accepted if  $t_0 > t_{table}$  with the Sig.(2-tailed) 5%  $<(0.05)$
- b.  $H_0$  is accepted if  $t_0 < t_{table}$  with the Sig.(2-tailed) 5 %  $>(0.05)$

Based on the t-test analysis of the post-test scores in both the experimental and control groups, it was determined that the calculated t-value ( $t_0$ ) of 3.162 surpasses the critical t-table value of 2.024. Moreover, the two-tailed significance level (Sig.) was found to be 0.003, which is below the conventional significance threshold of 0.05. In summary, these findings lead to the conclusion that the  $t_0$  value exceeds the t-table threshold, and the Sig. (two-tailed) is less than 0.05. Therefore, the research accepts the Alternative Hypothesis ( $H_a$ ), providing robust evidence that the Hello Talk application is highly effective in enhancing students' vocabulary mastery. These results are pivotal for your research, demonstrating the substantial impact of the Hello Talk application on students' vocabulary skills.

#### 4.2.5. Effect Size

$$\sigma = \frac{(SD_1 + SD_2)}{2} = \frac{6.4072 + 6.7813}{2} = 6.5942$$

$\sigma$  = pooled standard deviation

$SD_1$  = standard deviation of experimental group

$SD_2$  = standard deviation of controlled group

$$d = \frac{M_1 - M_2}{\sigma} = \frac{83.5 - 72}{6.5} = 1.30$$

$d$  = the effect size

$M_1$  = Mean of experimental group

$M_2$  = Mean of controlled group

Based on the result above, the researcher interpreted based on the criteria :

0 – 0.20	=weak effect
0.20 – 0.50	=modest effect
0.51 -1.00	=moderate effect
>	=strong effect

Therefore, it can be interpreted that Hello Talk application has strong effect on students' vocabulary mastery due to the result was 1.30 which is interval >1.

### **4.3. Discussion**

Based on the previously mentioned findings, it is clear that the Hello Talk application has a substantial influence on enhancing the vocabulary skills of students, especially those in the seventh grade at MTs Al-Abrar Sihuk-huk. This is supported by the notably better performance of students in the experimental class in the post-test when compared to those in the control class. It's worth noting that both groups had similar levels of vocabulary knowledge prior to the intervention, underscoring the significant difference in outcomes between students who were instructed using the Hello Talk application and those who were not.

The outcomes of this study are in line with the research conducted by Rita Seroja Br Ginting and her colleagues, who discovered that the Hello English application had a positive impact on students' vocabulary learning. Furthermore, research by Lailatussifa Ritonga confirmed the substantial influence of Hello English on students' vocabulary proficiency. Similarly, the findings of Vasselinov and Gergo indicated that Hello English significantly enhanced students' oral proficiency in grades 8 to 12. These related studies provide additional evidence of the effectiveness of Hello English in improving vocabulary skills among seventh-grade junior high school students. This research is consistent with studies carried out by Kusumadewi and Addal Muddin, who investigated the effects of another mobile application, Duolingo, on students' vocabulary proficiency. Despite the use of different mobile applications (Hello English), this study yielded similar results, demonstrating the significant impact of both Hello English and Duolingo on students' vocabulary mastery.

As a part of mobile-assisted language learning (MALL), this study underscores the effectiveness of Hello Talk in utilizing mobile phones for vocabulary learning. This is in line with research by Taj, Ali, Sipra & Ahmad, who examined the effects of technology-enhanced language learning on EFL learners' vocabulary acquisition. Furthermore, Lu's research found that students held positive attitudes toward learning vocabulary with the assistance of mobile phones, and Chen et al. demonstrated that pictorial annotations on mobile devices aided learners in understanding and retaining vocabulary.

Throughout the study, the researcher conducted six sessions with both experimental and control classes, focusing on the curriculum topic of "stating and asking for the existence of an infinite number of people and objects" in the first semester. In the experimental class, Hello Talk was used as a teaching tool for English, while the control class did not utilize the Hello Talk application. Several differences between the two classes were observed:

1. The experimental class exhibited more significant improvement compared to the control class, as evident in the difference between pre-test and post-test scores.
2. Hello Talk became the central element of the language teaching technique in the experimental class, in line with the approach advocated by Andrew Wright and colleagues. Vocabulary games were predominantly used, providing students with easy access to learning materials, exercises, and game-based engagement, aligning with Andrew and his colleagues' emphasis on emotional and experiential language learning.
3. The above conditions facilitated active student participation in the game, encouraging language usage and learning, consistent with Gee's conceptual model of games operating effectively across formal learning contexts.

In conclusion, this study unequivocally confirms the significant positive impact of using the Hello English application as an innovative and creative medium for teaching and learning vocabulary among eighth-grade students in junior high school.