

CHAPTER 4

RESEARCH RESULT AND DISCUSSION

In this chapter, the author presents the research results, offers a thorough data analysis, and conducts an in-depth discussion of the results.

4.1 Research Result

This chapter discusses the Profile of the School, Subject of the Study, Validity, Treatment Analysis, Normality Test, Homogeneity Test, Pre – test and Post – test Descriptive Statistics, T-Test, and Discussion of Research Findings.

4.1.1 Profile of the School

This research takes place at SMA Al – Irsyad Tegal from 27th April to 14th May 2024, for classes XI – 2 and XI – 3. This school is one of the private schools in Tegal city with a good reputation and winning many academic and non-academic awards in various competitions. SMA Al – Irsyad Tegal is located at Gajah Mada Street No. 128, Tegal city, Central Java.

This school has good administrators and adequate facilities to support the teaching and learning process, such as classrooms, laboratories, a library, a mosque, an administrative room, a principal's office, teachers' rooms, and a cafeteria. The school has 45 teachers, 2 of whom are English teachers. The total number of students in this school is 425 students. The following is the total number of students at SMA Al – Irsyad Tegal:

Table 3. The Total Number of Students at SMA AI – Irsyad Tegal

No.	Class	L	P	Total of students
1	X – 1	32	0	32
2	X – 2	32	0	32
3	X – 3	0	32	32
4	X – 4	0	32	32
Total		64	64	128
1	XI – 1	20	0	20
2	XI – 2	20	0	20
3	XI – 3	0	33	33
4	XI – 4	0	32	32
5	XI – 5	30	0	30
6	XI – 6	0	34	34
Total		70	99	169
1	XII MIPA 1	0	24	24
2	XII MIPA 2	0	25	25
3	XII MIPA 3	18	0	18
4	XII MIPA 4	19	0	19
5	XII IPS 1	0	25	25
6	XII IPS 2	17	0	17
Total		54	74	128
Total of students		188	237	425

4.1.2 Subject of the Study

The sample used in this research is the eleventh grade students from SMA Al – Irsyad Tegal, with XI – 2 as the control group and XI – 3 as the experimental group. In the experimental group, students learn English vocabulary using Cake Application as a learning medium. The sample is taken using cluster random sampling.

4.1.3 Validity Test Result

To determine the validity of the instrument, it is necessary to conduct an instrument validity test. The validity test stage is to measure questions that are considered valid for use in pre-test and post-test.

In this test, 50 multiple-choice questions are given to the students as a try out in the class XI – 1. Data is considered valid if the R-value is greater than the R-table. In this research, there are 40 questions that are considered valid. The validity test in this research is conducted on 20 students from the class XI – 1, using a significance level (α) of 5% or 0.05.

To find R-table, we first find $Df = N - 2 = 20 - 2 = 18$, so the R-table is 0.444. The following instrument is deemed valid and tested using SPSS version 27:

Table 4. The Result of Validity Test

No. Soal	Corrected Item- Total Correlation	R Tabel	<u>Keterangan</u>
S1	-0.115	0.444	Tidak Valid
S2	0.186	0.444	Tidak Valid
S3	-0.284	0.444	Tidak Valid
S4	-0.163	0.444	Tidak Valid
S5	0.149	0.444	Tidak Valid
S6	0.670	0.444	Valid
S7	0.679	0.444	Valid
S8	0.548	0.444	Valid
S9	0.592	0.444	Valid
S10	0.575	0.444	Valid
S11	0.658	0.444	Valid
S12	0.592	0.444	Valid
S13	0.851	0.444	Valid
S14	0.658	0.444	Valid
S15	0.491	0.444	Valid
S16	0.709	0.444	Valid
S17	0.729	0.444	Valid
S18	0.719	0.444	Valid
S19	0.617	0.444	Valid
S20	0.628	0.444	Valid
S21	0.504	0.444	Valid
S22	0.638	0.444	Valid
S23	0.680	0.444	Valid
S24	0.783	0.444	Valid
S25	0.670	0.444	Valid
S26	0.038	0.444	Tidak Valid
S27	-0.342	0.444	Tidak Valid
S28	0.166	0.444	Tidak Valid
S29	-0.206	0.444	Tidak Valid
S30	-0.005	0.444	Tidak Valid

S31	0.648	0.444	Valid
S32	0.701	0.444	Valid
S33	0.457	0.444	Valid
S34	0.635	0.444	Valid
S35	0.709	0.444	Valid
S36	0.515	0.444	Valid
S37	0.548	0.444	Valid
S38	0.701	0.444	Valid
S39	0.581	0.444	Valid
S40	0.534	0.444	Valid
S41	0.626	0.444	Valid
S42	0.659	0.444	Valid
S43	0.920	0.444	Valid
S44	0.711	0.444	Valid
S45	0.732	0.444	Valid
S46	0.722	0.444	Valid
S47	0.611	0.444	Valid
S48	0.479	0.444	Valid
S49	0.637	0.444	Valid
S50	0.711	0.444	Valid

Based on the table above, it shows that 10 items are considered invalid because the resulting coefficient is less than 0.444. It is necessary to replace or remove these items. So, there are 40 items considered valid for use in pre – test and post – test.

4.1.4 Reliability Test Result

Reliability testing aims to show how consistent a measurement result is when repeated two or more times. If the reliability is less than 0.6, it is not good, a value of 0.7 is acceptable, and above 0.8 is good. Based on the calculation of Cronbach's

Alpha formula using SPSS version 27, the reliability coefficient from the research is as follows:

Table 5. The Result of Reliability Test

Cronbach's Alpha	N of Items
.967	40

Based on the table above, all statement variables have values that can be categorized as acceptable reliability because they are greater than the Cronbach's alpha value of 0.6.

4.1.5 Treatment Analysis

At the validity testing stage, a tryout was used to test the questions that would be used in the pre-test and post-test. The tryout was conducted on April 24th 2024, in class XI – 1, which consisted of 20 students. After that, the results of the validation of 50 tryout questions showed that only 40 questions were valid. Then, a few days later, the researcher conducted a pre-test simultaneously for the experimental and control groups. They were given the same set of 40 multiple-choice questions. The pre-test for XI – 3 took place on April 27th 2024, and for XI – 2 on April 29th 2024.

After the pre-test was carried out, the next step was to give treatment to the experimental group, while conventional learning was conducted for the control group. The treatment consisted of 6 sessions. Due to the limited time given by the school, the researcher used other lesson hours for the treatment. Each session lasted about 45 or 90 minutes.

The first treatment meeting was conducted on April 29th 2024, for 45 minutes. Students in the experimental group learned English using Cake Application. The material used was prepositions, accompanied by videos and questions available in the application. Before starting, students downloaded Cake Application from the Play Store for Android users and iOS for Apple users. During the treatment, students watched videos with subtitles to help them learn. They filled in missing sentences in the video, with Indonesian subtitles provided for the missing parts, and students filled them in English. The researcher provided Cake Application Premium accounts to students, who formed groups to use one premium account together, so they could freely use paid features. The control group also had their first treatment on April 29th 2024, for 45 minutes, learning about analytical exposition text material, which was still used in schools. The control group only received lecture learning by paying attention to the analytical exposition text PowerPoint material from the researcher as a teacher.

The second treatment meeting was conducted on April 30th 2024, for 45 minutes of learning. As usual, students used Cake Application as a learning medium. The material used was action verbs with material videos and questions available in the application. Students were asked to understand the material and work on the questions by understanding the vocabulary of various action verbs and memorizing them to fill in the questions. Students were also given a premium account in each group to unlock paid features. Although some features were free, students were better off using a premium account to learn more deeply. Meanwhile, the second treatment for the control group was on April 30th 2024, for 45 minutes

of learning. Students continued to use analytical exposition text material, and the researcher, as a teacher, explained the material again using a whiteboard. Then students were given questions using assignment sheets and worked in pairs.

The third treatment meeting was on May 4th 2024, for 90 minutes of learning. The experimental group, as usual, used Cake Application as a learning medium. Students learned the adjectives vocabulary from the application. Each student took a quiz and understood the material through videos. Each student could also use a premium account as a group so they could study the material more deeply together. Every time they did this, students received a grade according to their abilities, which served as a benchmark for students to enhance their vocabulary. Meanwhile, at the third meeting for the control group on May 6th 2024, for 90 minutes of learning, they still used analytical exposition text material, and the researchers gave them questions using Quizizz to work on in groups. After that, the value immediately appeared in Quizizz.

The fourth treatment meeting was held on May 7th 2024, for 45 minutes of learning. They learned the vocabulary of stative verbs because they were important words used in everyday life. As usual, students learned through Cake Application by watching videos and taking quizzes to improve their vocabulary. Meanwhile, for the control group, at the fourth meeting held on May 6th 2024, the researcher took another class hour to teach because the time given by the school was limited, for 45 minutes of learning. The material for the control group changed to hortatory exposition text. The researcher, as a teacher, taught the material using PowerPoint, and students only paid attention while writing the material in the book.

The fifth treatment meeting for the experimental group was held on May 8th 2024, for 45 minutes of learning. They understood vocabulary material in explaining everyday situations. The usual learning medium was using Cake Application to increase their vocabulary by watching videos and taking quizzes. Meanwhile, the fifth meeting in the control group was held on May 7th 2024, for 45 minutes of learning. The researcher, as a teacher, explained hortatory exposition text material again, and students were given assignment sheets. They were asked to work in pairs, after which they received a score.

The sixth treatment meeting in the experimental group was held on May 11th 2024, for 45 minutes of learning. Students were asked to understand vocabulary material related to daily routines in Cake Application. They watched the video material and then did a quiz to improve their vocabulary. The sixth meeting of the control group was held on May 13th 2024. The researcher explained hortatory exposition text material again using a whiteboard. Then students were asked to do a Quizizz on hortatory exposition text material. After the break, the control group continued to take a post-test from the researcher to test their vocabulary skills from the results during treatment without using Cake Application. Meanwhile, on May 14th 2024, the experimental group carried out a post-test as a result of treatment using Cake Application as a learning medium.

4.1.6 Normality Test Result

The normality test is conducted to assess the distribution of data in a group to determine whether the distribution is normal or not. In this study, the normality test uses the Shapiro-Wilk test because the number of students is less than 100, with the

criteria: if the significance is > 0.05 , then the data is normally distributed, and if the significance is < 0.05 , then the data is not normally distributed.

The normality test is carried out in two classes: the control group and the experimental group. This study uses pre – test and post – test from both groups for normality test.

Table 6. The Result of Normality Test

Kelas		Shapiro-Wilk		
		Statistic	df	Sig.
Hasil Belajar Siswa	Pre-test Experimental Group	.960	33	.251
	Post-test Experimental Group	.939	33	.064
	Pre-test Control Group	.915	20	.078
	Post-test Control Group	.946	20	.312

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the explanation above, the data is normally distributed if the significance is > 0.05 . The normality test results from pre – test control group show a significance of 0.078, post – test control group shows a significance of 0.312, while pre – test experimental group shows a significance of 0.251, and post – test experimental group shows a significance of 0.064. According to the Shapiro – Wilk criteria, with a significance > 0.05 , the data is normally distributed. This means that the results of the normality test for all variables are normally distributed because the significance value is > 0.05 .

4.1.7 Homogeneity Test Result

The homogeneity test is used to identify if the variants in the test are the same or not. The calculation results are based on the Sig value in the test of homogeneity of the table. In summary, the homogeneity test is obtained as follows:

Table 7. The Result of Pre – test Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Hasil Belajar Siswa	Based on Mean	26.072	1	51	.335
	Based on Median	19.009	1	51	.323
	Based on Median and with adjusted df	19.009	1	31.988	.342
	Based on trimmed mean	25.593	1	51	.343

Table 8. The Result of Post – test Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Hasil Belajar Siswa	Based on Mean	8.262	1	51	.239
	Based on Median	4.521	1	51	.278
	Based on Median and with adjusted df	4.521	1	39.370	.240
	Based on trimmed mean	8.269	1	51	.256

Based on the output above, it is known that the significance value (Sig.) for pre – test variable is 0.335 and for post-test variable is 0.239, which is greater than 0.05. It can be concluded that the data variance is the same or homogeneous. It means that they are similar or equal across the groups being analyzed.

4.1.8 Pre-test and Post-test Descriptive Statistics

The descriptive analysis displays the average pre – test and post – test scores for each group. Here are the results:

Table 9. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test Experimental Group	33	52.5	72.5	61.591	4.8339
Post-test Experimental Group	33	65.0	87.5	76.894	5.8306
Pre-test Control Group	20	35.0	72.5	51.625	12.2816
Post-test Control Group	20	40.0	75.0	57.500	10.1307
Valid N (listwise)	20				

The average pre – test result for the control group was 51.62, lower than the results for the experimental group with a result of 61.59. Meanwhile, the average post – test results show that the control group got a result of 57.50, which is still low compared to the experimental group with a result of 76.89, which shows an improvement after using Cake Application as a learning medium.

4.1.9 T – Test Result

The researcher uses the Independent Sample T – test, with the following results:

Table 10. The Result of Independent Sample T – test

		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
Hasil Belajar Siswa	Equal variances assumed	.982	.239	5.094	51	<.001	19.3939	2.1871	15.0032	23.7847
	Equal variances not assumed			4.887	34.887	<.001	19.3939	2.4823	14.2985	24.4894

Based on the "Independent Samples Test" output table in the "t-test for Equality of Means" section, it is known that the Sig. (2-tailed) value is 0.001, which is less than 0.05. Therefore, it can be concluded that H₀ is rejected and H_a is accepted. Thus, it can be concluded that there is a significant difference between the average learning outcomes of students in post – test experimental group and the control group.

To compare the t-value with the t-table in the Independent Sample T – test, we need to pay attention to the t-value in the results of the Independent Sample T – test. The t-value of test is 5.094.

The formula for the t-table is:

$$(a / 2) ; (df)$$

$$(\alpha / 2) ; (df) = (0,05 / 2) ; (51) = 0,025 ; 51$$

It is found that the t-table value is 2.008. Thus, the result is:

$$t\text{-value} > t\text{-table} = 5.094 > 2.008$$

Therefore, it can be concluded that H₀ is rejected and H_a is accepted, which means there is a significant difference in the average learning outcomes of students in post – test experimental group compared to the control group.

4.2 Discussion

The research aims to determine the effectiveness of Cake Application as a learning medium for enhancing the vocabulary of eleventh grade students at SMA Al – Irsyad Tegal in the academic year of 2023/2024. The study shows that Cake Application can improve students' vocabulary.

Before conducting the research, the first step is to administer pre – test to both groups, the control group and the experimental group. Then, the experimental group receives treatment using Cake Application as a learning medium to enhance their vocabulary, while the control group receives treatment using the usual method employed by the school to study the lesson material. The final step is administering post – test to determine the results after the treatment.

The research results have been demonstrated through various tests using SPSS version 27. In pre – test, the experimental group score is 61.59, while the control group score is 51.62. In post-test, the experimental group score is 76.89, while the control group score is 57.50. These results indicate that the experimental group scores higher after receiving the treatment. From all the results, it can be concluded that H₀ is rejected and H₁ is accepted, which means there is a significant

difference in scores after students use Cake Application as an effective learning medium to enhance their vocabulary mastery.

This research demonstrates that using the Cake Application significantly enhances students' vocabulary mastery, aligning with findings from previous studies. Tawali and Kamarudin (2022), Dunka Nikmah and Rakhmawati (2023), and (Ramadhani et al. 2023), all reported improvements in vocabulary acquisition and student motivation through the use of Cake Application in different educational contexts. This study, conducted with eleventh grade students at SMA Al – Irsyad Tegal, further supports these results and extends the findings by employing a quasi-experimental design. The consistency of positive outcomes across various studies highlights Cake Application's effectiveness as a tool for vocabulary enhancement. Future research should explore long – term retention and effectiveness across different proficiency levels.

CHAPTER 5

CONCLUSION AND SUGGESTION

5.1 Conclusion

Cake Application is a learning medium for studying English for all age groups, especially for students at SMA Al – Irsyad Tegal, who are encouraged to improve their vocabulary. Based on the data analysis results, the Independent Sample T – Test post – test scores between control group and experimental group show that experimental group scores are higher than control group. The average post – test score of experimental class is 76.89, while control class is 57.50.

The hypothesis test indicates that H0 is rejected and H1 is accepted, which means Cake Application is effective in enhancing English vocabulary of eleventh grade students at SMA Al – Irsyad Tegal. The effectiveness of Cake Application in enhancing the English vocabulary of these students in the academic year of 2023/2024 is demonstrated by the Independent Sample T-test data, where the Sig. (2-tailed) value is 0.001, which is less than 0.05, indicating that H1 is accepted and H0 is rejected. The research results show a significant difference in vocabulary mastery between students before and after using Cake Application as a learning medium. It can be concluded that Cake Application is an effective learning medium for helping students enhance their English vocabulary mastery.

5.2 Suggestion

After completing this research, these findings are expected to be useful for teachers, students, and future research on the use of Cake Application as a learning medium. Based on the conclusions above, the following suggestions are:

1. Teacher

English teachers can use Cake Application as a fun English learning medium that has many interesting features for students. The use of Cake Application in English learning increases students' effectiveness in enhancing vocabulary, as well as improves listening and speaking skills.

2. Next Research

The researcher hopes this research is used in the learning process, and in further research, the results of using Cake Application are more useful for improving English skills in the learning process.