CHAPTER IV
RESEARCH FINDINGS AND DISCUSSION

A. Research Result

This research has carried out several stages in the process of data collection and analysis, including:

1. Instrument Test

1) Validity Test

According to Juhana Nasrudin, validity is a characteristic that must be possessed by a measuring instrument because it is directly related to whether or not the data can be trusted.[1] In this study, researchers tested the validity of the instrument using content and construct validity tests:

a) Content Validity

Content validity is determined by evaluating the test's viability or relevance through logical analysis by a qualified panel or expert opinion.[2] The researcher asked for opinions from expert judgment to fulfil content validity by consulting and asking for opinions from experts through items of instrument material that had been well prepared and by the object to be studied.

In this study, the researcher tested the content validity by consulting the test instrument that would be used by the research to several experts, consisting of two lecturers from English education, namely Drs. Ulin Nuha, M.PD., and Muhammad Arif Al-Hakim, M. TESOL., as well as the English teacher at the school used by the research, namely Indah Cahya Persada, S.Pd., expert validator, all stated that the instrument questions could be used without revision.

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[1] Nasrudin Juhana, *Metodologi Penelitian Pendidikan: Buku Ajar Praktis Cara Membuat Penelitian* (Bandung: Panca Terra Firma, 2019).

[2] Budi Utomo, "Analisis Validitas Isi Butir Soal Sebagai Salah Satu Upaya Peningkatan Kualitas Pembelajaran Di Madrasah Berbasis Nilai-Nilai Islam," *Jurnal Pendidikan Matematika (Kudus)* 1, no. 2 (2019), https://doi.org/10.21043/jpm.v1i2.4883.

The expert validation data is contained in the appendix.

b) Construct validity

Construct validity is the measure of how well an instrument discloses a particular theoretical ability or construct that it is intended to assess.[3] Construct validity, then, is a kind of rational internal validity of a measurement tool that indicates how much the tool reveals the theoretical components it is intended to assess.

Construct validity in this study was carried out with construction validity per item to test the level of validity of the items. This test is carried out by looking at the calculated r value, which will be compared to the r table value. The instrument is said to be valid when the value of the r count is greater than the r table. This validity test is assisted by the Microsoft Excel 2010 program to find out whether the items are valid or not. The results of the instrument validity test questions can be seen as follows:

Table 4.1
Validity Test Results

Question	R table	R count	Description
1	0,344	0,359	Valid
2	0,344	0,453	Valid
3	0,344	0,432	Valid
4	0,344	0,403	Valid
5	0,344	0,493	Valid
6	0,344	0,449	Valid
7	0,344	0,349	Valid
8	0,344	0,366	Valid
9	0,344	0,403	Valid
10	0,344	0,377	Valid
11	0,344	0,451	Valid

[3] Heri Retnawati, "Proving Content Validity of Self-Regulated Learning Scale (The Comparison of Aiken Index and Expanded Gregory Index)," *Research and Evaluation in Education* 3, no. 3 (2016): 714–17.

12	0,344	0,363	Valid
13	0,344	0,417	Valid
14	0,344	0,574	Valid
15	0,344	0,385	Valid
16	0,344	-0,118	Invalid
17	0,344	0,377	Valid
18	0,344	0,370	Valid
19	0,344	0,255	Invalid
20	0,344	0,385	Valid
21	0,344	0,390	Valid
22	0,344	0,138	Invalid
23	0,344	0,386	Valid
24	0,344	0,065	Invalid
25	0,344	0,411	Valid

Following what is in the table above, the validity test on each questionnaire item, where r count is compared with r table with the number of students in the instrument trial class of 25, shows that the value of r table is 0.344. Based on the tests that have been carried out, each statement item has a value of r count > 0.344 for as many as 21 items and 4 items r count < 0.344. It can be seen that for each statement item on the question instrument, 21 items are said to be valid and 4 items are said to be invalid. It can be concluded that the 21 items in the question instrument can be used as a research measurement tool. However, researchers only took 20 questions to be tested in the study.

2) Reliability Test

After conducting the validity test, the reliability test will be carried out as an accuracy assessment tool to determine whether the question items have met the feasibility of the study or not.[4] The reliability test results

[4] Zulkifli Matondang, "Validitas Dan Reliabilitas Suatu Instrumen Penelitian," *Jurnal Tabularasa PPS Unimed* 496–500, no. 1 (2009): 87–97, https://doi.org/10.4028/www.scientific.net/AMM.496-500.1510.

were obtained by conducting the Cronbach's Alpha reliability test with the help of SPSS 22. The reliability test was carried out jointly on all items or question items in the research instrument. The decision-making standards in the reliability test are as follows:

If the Cronbach's Alpha value is > 0.60, then the question instrument is declared reliable or consistent.

If the Cronbach's Alpha value is <0.60, then the question instrument is declared unreliable or consistent.

The results of the calculation of the instrument reliability test using the SPSS 22 program are as follows:

Table 4.2
Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.750	20

Source: Output IBM SPSS Statistics 22

Based on the table above, it is known that the reliability of the question instrument is 0,750. If you look at Cronbach's Alpha reliability test decision-making standards, the test results on each item are in a good category because they are in the range of more than 0.60. Based on the results of the reliability test obtained based on Cronbach's Alpha value, namely 0.750> 0.60, the question instrument is declared reliable.

2. Prerequisite Tests

Normality and homogeneity testing are prerequisite tests for this study. Prerequisite tests are carried out before hypothesis testing is carried out. This is because hypothesis testing can be done in two ways, namely with parametric statistics and nonparametric statistics. The following are the results of the normality test and homogeneity test of the audiovisual method and traditional method data.

1) Normality Test

Before testing the research hypothesis, a normality test is first carried out as a procedure used to determine

whether data comes from a normally distributed population or not.[5] In this test, we used the Kolmogorov-Smirnov formula with a significance level of 0.05. In this test, if the significance value is greater than 0.05, then it is said to be normally distributed. The hypothesis to be tested is:

H_0: Data is normally distributed.

H_a: Data is not normally distributed.

Furthermore, the calculation will be assisted by the SPSS Statistic 22 computer program with the following test criteria:

Accept H_0 if the significance chance value is > 0.05.

Reject H_0 if the significance chance value is <0.05.

The following is a summary of the normality test results in the table:

a) Normality Test of Audiovisual Method Values of Experimental and Control Classes

Table 4.3 Output of Analysis Normality Test of Audiovisual Method Values of Experimental and Control Classes

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Metode Audio Visual	Eksperimen	.167	29	.038	.966	29	.447
	Kontrol	.166	29	.040	.946	29	.143

Source: Output IBM SPSS Statistics 22

Based on the table above, the results of testing the audiovisual method value data obtained the Kolmogorov-Smirnov sig value on the experimental class value of 0.038 > 0.05 and the control class value of 0.040> 0.05. It can be concluded that the data for the experimental class and control class values are normally distributed and have passed the normality test.

[5] Nuryadi et al., *Buku Ajar Dasar-Dasar Statistik Penelitian*.

b) Normality Test of Traditional Method Values of Experimental and Control Classes

Table 4.4 Output of Analysis Normality Test of Traditional Method Values of Experimental and Control Classes

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Traditional	Eksperimen	.166	29	.039	.951	29	.194
	Kontrol	.166	29	.040	.946	29	.143

a. Lilliefors Significance Correction

Source: Output IBM SPSS Statistics 22

Based on the table above, the results of testing the data on the value of traditional methods obtained the Kolmogorov Smirnov sig value on the Experimental class value of 0.039> 0.05 and the control class value of 0.040> 0.05. It can be concluded that the data for the experimental class and control class values are normally distributed and have passed the normality test.

c) Normality Test of Experimental Values of Audiovisual and Traditional Method

Table 4.5 Output of Analysis Normality Test of Experimental Values of Audiovisual and Traditional Method

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Eksperimen	Audiovisual	.167	29	.038	.966	29	.447
	Tradisional	.166	29	.039	.951	29	.194

a. Lilliefors Significance Correction

Source: Output IBM SPSS Statistics 22

Based on the table above, the results of testing the data on the value of experimental class obtained the Kolmogorov Smirnov sig value on the audiovisual method value of 0.038> 0.05 and the traditional method value of 0.039> 0.05. It can be concluded that the data for the experimental class and control class values are normally distributed and have passed the normality test.

2) Homogeneity Test

After testing normality, we need to test the homogeneity of the data. The homogeneity test is used to determine whether two or more groups of sample data come from populations that have the same variance.[6] If they have the same variance, then comparisons can be made, but if they have different variances, then comparisons cannot be made. In this study, the calculation will be assisted by the SPSS Statistic 22 computer program with the following test criteria:

Accept H_0 if the significance chance value is > 0.05.

Reject H_0 if the significance chance value is <0.05.

a) Homogeneity Test of Audiovisual Method Values of Experimental and Control Classes

Table 4.6 Output of Analysis Homogeneity Test of Audiovisual Method Values of Experimental and Control Classes

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Audiovisual	Based on Mean	.007	1	56	.934
	Based on Median	.003	1	56	.955
	Based on Median and with adjusted df	.003	1	55.959	.955
	Based on trimmed mean	.002	1	56	.963

Source: Output IBM SPSS Statistics 22

From table 4.6, the known significance results on based on mean sig> α are 0.934> 0.05. It can be interpreted that the experimental class data and the control class get homogeneous results or have the same variance.

[6] Usmadi, "Pengujian Persyaratan Analisis (Uji Homogenitas Dan Uji Normalitas)," *Inovasi Pendidikan* 7, no. 1 (2020): 50–62, https://doi.org/10.31869/ip.v7i1.2281.

b) Homogeneity Test of Traditional Method Values of Experimental and Control Classes

Table 4.7 Output of Analysis Homogeneity Test of Traditional Method Values of Experimental and Control Classes

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Traditional	Based on Mean	.291	1	56	.592
	Based on Median	.112	1	56	.739
	Based on Median and with adjusted df	.112	1	55.987	.739
	Based on trimmed mean	.273	1	56	.604

Source: Output IBM SPSS Statistics 22

From table 4.7, the known significance results based on mean sig> α are 0.592 > 0.05. It can be interpreted that the experimental class data and the control class get homogeneous results or have the same variance.

c) Homogeneity Test of Experimental Values of Audiovisual and Traditional Method

Table 4.8 Output of Analysis Homogeneity Test of Experimental Values of Audiovisual and Traditional Method

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Eksperimen	Based on Mean	.206	1	56	.652
	Based on Median	.080	1	56	.778
	Based on Median and with adjusted df	.080	1	55.992	.778
	Based on trimmed mean	.223	1	56	.638

Source: Output IBM SPSS Statistics 22

From table 4.8, the known significance results based on mean sig> α are 0.652> 0.05. It can be interpreted that the experimental class data and the control class get homogeneous results or have the same variance.

3. Hypothesis Testing

In hypothesis testing, we need to pay attention to the prerequisite test before hypothesis testing. In the data analysis of this study, the data was found to be normally distributed and homogeneous, and further hypothesis testing was done through parametric statistics and an independent sample t-test. In this study, there are 3 hypotheses, namely: Hypothesis 1 test (test of differences in students' vocabulary mastery in experimental classes using audio visual methods and control classes without using audiovisual methods), Hypothesis 2 test (test of differences in students' vocabulary mastery in experimental classes using traditional methods and control classes without using traditional methods), and Hypothesis 3 test (test of significant differences in students' vocabulary mastery in audiovisual method experimental classes and traditional method experimental classes). The results are as follows:

1) Hypothesis Test 1 (Test of Differences in Student Vocabulary Mastery in Experimental Classes Using Audio Visual Method and Control Class Without Using Audiovisual Method)

In the pre-requisite analysis test, results show that the data is normally distributed and has a homogeneous variance. Therefore, this study used the independent sample t test. This test is used to test two samples that are not related to each other. The following are the results and steps of hypothesis testing in this study:

a) Formulate a hypothesis.

H_0: There is no difference in students' vocabulary mastery between the experimental class using the audio-visual method and the control class without using the audio-visual method.

H_a: There is a difference in students' vocabulary mastery between the experimental class using the audio-visual method and the control class without using the audio-visual method.

b) Determine the average value of each class by looking at the group statistical hypothesis test as follows:

Table 4.9 Hypothesis Test Output Group Statistics

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil	Kelas Eksperimen (Audiovisual)	29	69.48	17.745	3.295
	Kelas Kontrol	29	52.41	17.659	3.279

Source: Output IBM SPSS Statistics 22

Based on the results of the "Group Statistics" output above, it is known that the average score of the experimental class using the audiovisual method obtained a value of 69.48, while the control class without using audiovisual obtained an average value of 52.41. Thus, from descriptive statistics, it can be concluded that there is a difference in the average value in the experimental class using the audiovisual method and the control class without using the audiovisual method. In the experimental class using the audiovisual method, there is an average value of 69.48, higher than the control class without using the audiovisual method, with an average value of 52.41.

c) Determining significance to determine the basis for making a t test hypothesis test decision.

Significance can be seen through the t test results table to prove whether there is a difference or not. It can be seen through the following "Independent Sample Test" output:

Table 4.10 Independent Sample Test Output

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
Hasil	Equal variances assumed	.007	.934	3.672	56	.001	17.069	4.649	7.756	26.382
	Equal variances not assumed			3.672	55.999	.001	17.069	4.649	7.756	26.382

Source: Output IBM SPSS Statistics 22

Based on the "Equal variances assumed" output table above, it is known that the sig value (2-tailed) of

0.001 <0.05, then the decision in the independent sample t test can be concluded that H_a is accepted and H_0 is rejected. It can be concluded that there is a difference in students' vocabulary mastery in the experimental class using the audio-visual method and the control class without using the audio-visual method.

2) Hypothesis 2 Test (Test of Differences in Students Vocabulary Mastery in Experimental Classes Using Traditional Method and Control Classes without Using Traditional Methods)

In testing hypothesis 2, the independent sample t test was used because the data obtained were normally distributed. The following are the results and steps of hypothesis testing in this study:

a) Formulate a hypothesis

H_0: There is no difference in students' vocabulary mastery in the experimental class using traditional methods and the control class without using traditional method.

H_a: There is a difference in students' vocabulary mastery in the experimental class using traditional methods and the control class without using traditional method.

b) Determine the average value of each class by looking at the group statistic hypothesis test as follows:

Table 4.11 Hypothesis Test Output Group Statistics

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil	Kelas Eksperimen (Traditional)	29	55.17	17.752	3.297
	Kelas Kontrol	29	52.41	17.659	3.279

Source: Output IBM SPSS Statistics 22

Based on the results of the "Group Statistics" output above, it is known that the average score of the experimental class using traditional methods obtained a value of 55.17, while the control class without using traditional methods obtained an average score of 52.41.

Thus, statistically descriptively, it can be concluded that there is a difference in the average value between the experimental class using traditional methods and the control class without using traditional methods. In the experimental class using traditional methods, there is an average value of 55.17 higher than in the control class without using traditional methods, with an average value of 52.41.

c) Determining significance to determine the basis for making a t test hypothesis test decision.

Significance can be seen through the t test results table to prove whether there is a difference or not. It can be seen through the following "Independent Sample Test" output:

Tabel 4.12 Output Independent Sample Test

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
Hasil	Equal variances assumed	.291	.592	.593	56	.555	2.759	4.650	-6.556	12.073
	Equal variances not assumed			.593	55.998	.555	2.759	4.650	-6.556	12.073

Source: Output IBM SPSS Statistics 22

Based on the output table "Equal variances assumed" above, the value of sig is known. (2-tailed) of 0.555 > 0.05, then the decision in the independent sample t test can be concluded that H_a is rejected and H_0 is accepted. It can be concluded that there is no difference in students' vocabulary mastery between the experimental class using traditional methods and the control class without using traditional methods.

3) Test Hypothesis 3 (Test of Significant Differences in Students' Vocabulary Mastery in Audiovisual Method Experimental Classes and Traditional Method Experimental Classes)

In testing hypothesis 3, the test to be used is the paired sample t test because the data obtained are normally distributed. Here are the results and steps of hypothesis testing in this study:

a) Formulate a hypothesis

$H_{0:}$ There is no significant difference in students' vocabulary mastery between experimental classes using audiovisual methods and experimental classes using traditional methods.

H_a: There is a significant difference in students' vocabulary mastery between experimental classes using audiovisual methods and experimental classes using traditional methods.

b) Determine the average value of each class by looking at the group statistic hypothesis test as follows:

Tabel 4.13 Hypothesis Test Output Group Statistics

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil	Kelas Eksperimen Audiovisual	29	69.48	17.745	3.295
	Kelas Eksperimen Tradisional	29	55.17	17.752	3.297

Source: Output IBM SPSS Statistics 22

Based on the results of the "Group Statistics" output above, it is known that the average score of the experimental class using the audiovisual method obtained a score of 69.48, while the experimental class using traditional methods obtained an average score of 55.17.

Thus, statistically descriptively, it can be concluded that there is a difference in the average score between the experimental class using audiovisual methods and the experimental class using traditional methods. In the experimental class using audiovisual methods, there is an average score of 69.48 higher than in the experimental class using traditional methods, with an average value of 55.17.

c) Determining significance to determine the basis for making a t test hypothesis test decision

Significance can be seen through the t test results table to prove whether there is a difference or not. It can be seen through the following "Independent Sample Test" output:

Tabel 4.14 Output Independent Sample Test

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
Hasil	Equal variances assumed	.206	.652	3.070	56	.003	14.310	4.661	4.973	23.648
	Equal variances not assumed			3.070	56.000	.003	14.310	4.661	4.973	23.648

Source: Output IBM SPSS Statistics 22

Based on the "Equal variances assumed" output table above, the sig value is known (2-tailed) of 0,003 < 0.05, then the decision in the independent sample t test can be concluded that H_a is accepted and H_0 is rejected. It can be concluded that there is a difference in students' vocabulary mastery in the experimental class using the audio-visual method and the control class without using the audio-visual method.

B. Discussion

1. Data on Differences in Student Vocabulary Mastery in the Experimental Class Using the Audiovisual Method and the Control Class without Using the Audiovisual.

The audiovisual method is a way of presenting lesson material using audiovisual media which contains elements of sound and images, where the process of absorbing the material involves the senses of sight and hearing. From this research study, hypothesis testing was carried out in the experimental class which used the audiovisual method and the control class which did not use the audiovisual method. Through this test, it can be seen that there is a difference in the average value results between the experimental class which uses the audiovisual method and the control class which does not use the audiovisual method through the SPSS Group Statistics output results. It can be seen that the average value of the experimental class is 69.48 and the average value of the control class is 52.41. Thus, it can be concluded that the average score in the experimental class using the audiovisual method is higher than the control class without using audiovisual, with a difference in the average score of 17.07. Apart from that, the final result of the hypothesis can be seen through the output of the independent

sample t test, it is known that the sig (2-tailed) value is smaller than < 0.05, namely the sig (2-tailed) value is 0.001 < 0.05, which means H_a accepted. It can be concluded that there is a difference in students' vocabulary mastery in the experimental class using the audiovisual method and the control class without using the audiovisual method.

2. Data on Differences in Students' Vocabulary Mastery in The Experimental Class Using Traditional Methods and The Control Class without Using Traditional Methods.

The method that teachers often use in teaching is the traditional method. This method is classified as a conventional method because the preparation is the simplest, easiest and most flexible without requiring special preparation. The traditional method of learning vocabulary is usually done by the teacher providing a list of vocabulary words from a book or dictionary, which is then written on the blackboard, and the teacher asks students to note down and memorize it. According to Helma, learning using conventional methods here is the delivery of learning material directly through oral narrative.[7] From this research study, independent tests were carried out in the experimental class using traditional methods and the control class without using traditional methods, and the results were found to be different in the average scores for each class. As for the results found, the average score in the experimental class was 55.17, and the control class got an average score of 52.41. Thus, it can be concluded that the average value results in the experimental class using traditional methods are higher than in the control class without using audiovisual methods, with a difference in average value of 2.76. Apart from that, the final result of the hypothesis can be seen through the output of the independent sample t-test, it is known that the sig (2-tailed) value is smaller than > 0.05, namely the sig (2-tailed) value is 0.555 > 0.05, which means Ha rejected. It can be concluded that there is no difference in students' vocabulary mastery in the experimental class using

[7] Helma Hidayati, "Belajar Pembelajaran Dalam Metode Ceramah," *Thesis Commons*, 2022, 2–3.

the traditional method and in the control class without using the traditional method.

3. Test Data for Significant Differences in Students' Vocabulary Mastery in The Audiovisual Method Experiment Class and The Traditional Method Experiment Class

The audiovisual learning method is a presentation of teaching materials using sound and image elements such as video shows on YouTube, animation and other videos. The use of audiovisual methods in the learning process is considered to be easy for students to understand; besides that, an attractive presentation can motivate students to learn so that they are very enthusiastic about delivering learning material. The traditional method is a teacher-centred method, where the teacher's role is to control most of the learning presentation. In this case, it is assessed that there is a lack of variety in learning to increase student motivation in learning, which has an impact on students' less-than-optimal mastery of the material.

This can be proven by the results of this research, where in the independent sample t-test, the sig value was obtained (2-tailed) 0.03 > 0.05, so the hypothesis was accepted. It can be concluded that there are differences between audiovisual methods and traditional methods. Where the average class score using the audiovisual method is better than the class score using the traditional method. This research is in line with research conducted by Samaneh Yousefi with the title "*Comparison of Traditional and Video Mediated Learning of English: Tracking a New Approach".* The results showed that learning using videos was more effective compared to traditional methods.[8]

[8]Samaneh Yousefi, "Comparison of Traditional and Video Mediated Learning of English: Tracking a New Approach," *Procedia - Social and Behavioral Sciences* 98 (2014): 1940–44, https://doi.org/10.1016/j.sbspro.2014.03.626.